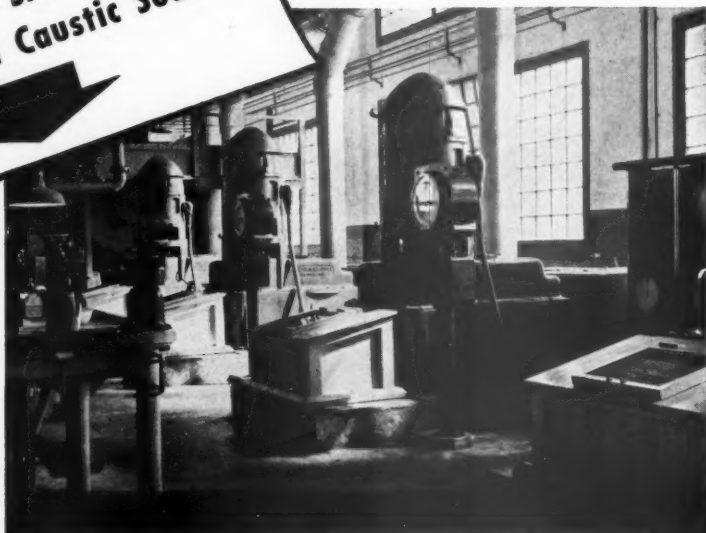


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## Suspicion of Dumping Order Issued Against British Columbia Bleached Sulphite

Minimum declared value of \$45 per ton on Bleached Sulphite set by U. S. Customs on July 29th pending investigation—Why pick on British Columbia when European bleached is selling at equally low prices, is attitude of U. S. pulp industry—Borah Resolution passed by Senate on July 31st—Amendment to Anti-Dumping Act introduced in House by Representative Martin F. Smith.

ON July 29th the Secretary of the Treasury, through the U. S. Bureau of Customs, authorized the issuance of suspicions of dumping orders against imports of British Columbia bleached sulphite pulp if the declared value is less than the foreign market value of \$45. This was \$1 per ton under the minimum value for bleached sulphite set by the Canadian Department of National Revenue on April 13th and applying to imports of European origin. The Canadian action was taken to protect Canadian producers against market raiding by European pulp manufacturers.

● The suspicion of dumping order affects the bleached sulphite pulp produced by only one company, the British Columbia Pulp & Paper Company, with headquarters in Vancouver and mills at Woodfibre and Port Alice, B. C. Until the Treasury's investigation is completed and dumping is found or not found the bleached sulphite pulp shipped into the United States from the British Columbia Pulp & Paper Company's mills, through any port of entry will be subject to the posting of a single entry bond.

The collector of customs for District No. 30, that embracing the State of Washington, has issued an order requiring the posting of single entry bond of \$10 per ton on British Columbia bleached sulphite pulp entering the United States through his district. At the time this is written it is not known what bond other collectors of the customs in middle western and eastern districts are requiring.

No action had been taken by the U. S. Customs Service on unbleached sulphite pulp up to the time this issue went to press.

● The reaction in the United States pulp industry to the order against bleached sulphite from British Co-

lumbia was, why pick on British Columbia which supplies but a small part of the bleached sulphite imported into this country? Why should discrimination be shown against the product of one province, of one company, when we imported in 1938 from all of Canada but 37 per cent of the bleached sulphite pulp for paper making. (Rayon and chemical grades are not included in this percentage as they are sold at far higher prices.)

What good will it do to require a bond on imports from British Columbia when far more bleached sulphite is coming in from Sweden, Finland and Norway together, than enters from all of Canada? That is another pertinent question being asked as a result of the customs order.

The answers to these questions are to be found in the technical procedure outlined in the Anti-Dumping Act of 1921 and in the circumstances involving the action of the Canadian government last April 13th in establishing prices at which wood pulp of European origin could be sold in Canada.

The authorization of the Secretary of the Treasury of the issuance of suspicions of dumping orders arose from that part of the Anti-Dumping Act of 1921 which allows an appraiser in any one of the customs districts to report any facts within his knowledge which he believes will assist the Secretary of the Treasury in deciding whether the merchandise imported is being sold at less than its fair value.

The Anti-Dumping Act of 1921 requires that the issuance of a suspicion of dumping by any appraiser automatically prevents the appraisal of the suspected merchandise entering through any customs district pending a final notice by the Secretary of the Treasury. It is then discretionary upon the collector of customs in each district as to the amount of the bond he may re-

quire of the importer of the merchandise under suspicion. In the case of duty-free merchandise, such as is wood pulp, the collector of customs for each district will require a bond in the amount he thinks sufficient to protect the U. S. government against loss in case the investigation by the Treasury results in finding that the merchandise was being sold in this country at less than its foreign sale value. The amount of the bond required is then, in the case of duty-free merchandise, a tentative estimate which may be high or low.

Under the present law this investigation, which requires checking of costs and sales prices in foreign countries, may be completed in a few months or may require years. Until the investigation is completed all appraisement is suspended and what imports come in do so under bond.

It is important to note that the suspicion of dumping order against British Columbia bleached sulphite pulp was not issued by the Treasury Department, nor by the Bureau of Customs. The action was taken by an appraiser of the U. S. Customs Service following a report of one or more appraisers which resulted in the Bureau of Customs AUTHORIZING the appraisers to issue suspicions of dumping if they felt the evidence so warranted. Under this authority created by the Anti-Dumping Act of 1921, an appraiser did issue this order of suspected dumping which resulted in the withholding of appraisals on British Columbia bleached sulphite pulp by all appraisers working in all of the U. S. Customs Service districts.

It will be noted that the action of the appraisers in the several customs districts is discretionary not mandatory. Unless the established sales value of a product in the country in which it is manufactured is known to the appraisers they are not likely to suspect a product entering the United States of being sold at a "dumping" price, which is less than the sales value or cost of manufacture in the country of origin. An appraiser need not act unless he feels he is doing so upon sound evidence which will prevent his suspicion of dumping order from being reversed upon investigation by the Treasury Department.

The net result is that in the absence of a known foreign cost or sales price the appraisers do not act. In the case of the British Columbia bleached sulphite pulp, the appraisers of the U. S. Customs had a yard-

stick for comparing the declared value of the pulp upon entry into the United States with a price set officially by the Canadian government.

The fact that the Canadian government on April 13th set minimum prices at which European pulps could be sold in Canada without being subject to anti-dumping duties, gave the U. S. Customs appraisers a basis of comparison with the declared valuation per ton of the pulp entering this country from Canada. These Canadian prices are supposed to have been established after an investigation by the Department of National Revenue in Ottawa of the costs of manufacturing the several grades of pulp in Canada and of the selling prices of these pulps in Canada.

The Canadian order was as follows:

● Effective April 13th, 1939, the Department of National Revenue, Ottawa, Canada, made effective the following minimum values, in Canadian Funds, for entry purposes, on Woodpulp of European origin, per ton of 2,000 lbs. air dry weight f.o.b. point of production:

Unbleached Sulphate (Kraft) Woodpulp	\$36.00
Bleached Sulphate (Kraft) Woodpulp	50.00
Unbleached Sulphite Woodpulp	36.00
Bleached Sulphite Woodpulp	46.00
Bleached Soda Woodpulp	46.00

When shipments move to Canada from an intermediate point, all charges from point of production are to be added in determining values for entry purposes. Any woodpulp shipped on consignment without sale prior to shipment will be subject to the same regulations.

If the sales value of woodpulp imported is below the minimum values that have been set, such importations will be subject to dumping duties equal to the difference between the selling price and the minimum values for import that have been established. It is to be noted that these regulations do not apply to woodpulp of United States origin.

Although it is well known by American pulp and paper manufacturers that wood pulps of European origin are being sold in the United States at prices as low as, if not lower than, the prices at which Canadian pulps are marketed here, the costs and sales values of these pulps

in their respective European countries are not publicly known and the appraisers of the U. S. Customs do not have an obvious yardstick against which they can readily compare the declared value of these European pulps upon their entry into the United States. The Anti-Dumping Act of 1921 provides that the Treasury Department can investigate the costs and sales values of products in the countries of origin to determine whether or not these products are being sold below the home costs or sales prices in this country. It is reported that the Treasury is now making this investigation which will take many months to complete.

The issuance of a suspicion of dumping order against British Columbia bleached sulphite pulp while the same grade of pulp continues to enter the United States from other countries and to be sold at prices as low or lower without hindrance by the U. S. Customs, emphasizes the unfairness as well as ineffectiveness of the Anti-Dumping Act of 1921. It is this defect, among others, which Representative Martin F. Smith seeks to remedy for the benefit of domestic and foreign manufacturers alike in the amendment which he introduced in July and which will be acted upon at the second session of the 76th Congress which convenes on January 15th, 1940.

#### Treasury Making Investigation

● The same law requires that the Treasury Department investigate following the issuance of suspicions of dumping orders and upon the facts obtained from this investigation to determine whether or not there was actual dumping. The United States Treasury is now making this investigation.

In this connection the Associated Press on August 2nd carried the following report from Washington, D. C.:

"At the treasury, it was made known that a preliminary investigation indicated a necessity for action to remedy injury done to the 'domestic wood pulp industry by reason of the importation of foreign wood pulp at low prices.'

"If further investigation reveals that pulp is being sold here at dumping prices, a compensating tariff can be imposed on the product which is now ordinarily duty-free."

In the above statement the treasury recognizes actual injury to the American wood pulp industry by low-priced foreign wood pulp im-



ports. This marks definite progress on the part of the producers of wood pulp in the United States in their endeavor to obtain recognition of the fact that they cannot employ workmen at high wages, pay high taxes and high freights and compete with foreign pulp produ-

cers who enjoy the advantages of depreciated currencies, low wages and low ocean freight rates. Canadian pulp producers do not benefit from depreciated currency as their dollar is at par or a slight premium compared with the U. S. dollar.

Series," and can be purchased from the Superintendent of Documents in Washington, D. C., for thirty cent.

This report was never given the publicity its facts warranted so the public generally knows nothing of the Tariff Commission's findings. The report which will be made on April 15, 1940, will undoubtedly be brought to the attention of the entire pulp and paper industry and possibly to the general public, for this report will be made at a time when the pulp prices will not be anywhere nearly as good as they were in 1937 when the Tariff Commission issued its preliminary reports on the investigation authorized by the 1935 resolution. In periods of good prices fundamental maladjustments are neglected. They are not even recognized by many people. But when prices are low, all interested in the industry get busy looking for the solution.

The Tariff Commission report which is to be made to the Senate on April 15, 1940, will contain most of the facts at the root of the maladjustment in the American pulp industry, our paper industry and our entire forestry situation. The trouble is deeper than is generally realized. Likewise, its solution would benefit more people, create more permanent employment than is expected even by many of those closest to the problem.

The problem, involving trade with other countries, is a Federal problem and therefore must be settled by Congress. On April 15, 1940, Congress will be in possession of most of the facts, of the latest evidence. Will it properly diagnose the trouble? What is more important, will it prescribe the remedies which will result in a cure?

If the interested industries keep working the chances are good that Congress will act to cure the trouble.

## The Borah Resolution

SENATOR WILLIAM E. BORAH, senior member of the United States Senate from Idaho, again exercised his influence in behalf of the American wood pulp industry during July by the introduction of a resolution requiring the United States Tariff Commission to investigate all facts relating to the wood pulp situation and to report back to the Senate on January 15, 1940.

● Before passage of the Borah resolution, the date upon which the report is to be made to the Senate was changed to April 15, 1940, upon the request of the U. S. Tariff Commission which wrote Senator Pat Harrison of the Senate Finance Committee, saying that the time from August 1, 1939, to January 15, 1940, was too short in which to prepare a report for the Senate.

As Senate Resolution No. 160 it was referred to the Senate Finance Committee, favorably reported out by that committee and on July 31st was passed by the Senate. The resolution follows:

"Resolved, That the United States Tariff Commission, under authority conferred by section 332 of the Tariff Act of 1930, is directed to investigate and report to the Senate all facts relating to wood pulp or pulpwood, showing the volume of importations compared with domestic production and the conditions, causes, and effects relating to foreign competition, and all other facts showing the differences in, or which affect competition between, the production of wood pulp or pulpwood in the United States or that imported in the principal markets of the United States. Such report to be made to the Senate not later than April 15, 1940."

It is expected that the Tariff Commission's report will focus attention upon the inability of the American wood pulp industry to compete with foreign made pulp which benefits from low labor costs, low shipping rates and in the cases of European

producing countries, from depreciated currencies, and that its facts will also emphasize the opportunity that exists for the development of the domestic industry as a heavy contributor to employment, as a stabilizing influence on American forest values and upon the prices of paper made from wood pulp.

Four years ago, on August 24, 1935, the United States Senate adopted Senate Resolution No. 200 which had been introduced by Senator Borah. This resolution read as follows:

"Resolved, That the United States Tariff Commission, under authority conferred by section 332 of the Tariff Act of 1930, is directed to investigate and report to the Senate all facts relating to wood pulp or pulpwood, showing the volume of importations compared with domestic production and the conditions, causes, and effects relating to foreign competition, and all other facts showing the differences in, or which affect competition between, the production of wood pulp or pulpwood in the United States or that imported in the principal markets of the United States."

As no completion date was included in the resolution the Tariff Commission's report was not issued in complete bound form until 1938. It is available to the public under the title of "Report to The United States Senate on Wood Pulp and Pulpwood, Report No. 126, Second

## The Smith Anti-Dumping Amendment

ON July 20, 1939, a measure of exceptional importance to American industry was introduced in the House of Representatives by Representative Martin F. Smith of the Third District of Washington.

Known as H. R. 7312, the bill is a fundamental one, vital not alone

to the pulp and paper manufacturers of the United States but to all industries, to all men and women working in those industries which compete with imported products produced under living conditions far lower than our own.

In brief this measure Americanizes the Anti-Dumping Act of 1921.

The original act intended to protect American industry and its employees against "dumping" of foreign made goods at prices below the point of competition by American industry unfortunately based the machinery for proving "dumping" upon the foreign sales price, the foreign cost, although the actual sales were made in the United States.

Representative Smith's proposed amendment, which comes after long study of the basic problem and of the 1921 act, eliminates the foreign cost and sales price as the standards for determining what constitutes "dumping," and substitutes the American cost as the yardstick by which the foreign prices of merchandise imported into this country shall be measured.

It is simply the Americanization of the Anti-Dumping Act which has proved so ineffective because it is based upon foreign costs instead of American costs.

It will be difficult for any real American to disagree with the philosophy of the Smith amendment for it is obviously fair to our own people and also fair to all foreigners selling in this country. Obviously, Congress should be fair to Americans, should protect them before foreigners.

Here is H. R. 7312 which was introduced in the first session of the 76th Congress and will be acted upon by the second session which begins in January, 1940.

● "A Bill to amend an Act entitled 'The Anti-Dumping Act of 1921' (May 27, 1921, ch. 14, sec. 212, 42 Stat. 15; June 17, 1930, ch. 497, title 4, sec. 651 (d), 46 Stat. 762).

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 201 of the Anti-Dumping Act of 1921 is amended so as to read as follows:

"(a) Whenever an industry in the United States, producing goods, wares, merchandise, or raw materials, equal to not less than 10 per centum of the average consumptive demand in the United States, whether dutiable or free of duty under existing laws or treaties, is injured, or is likely to be injured, or its production capacity curtailed or diminished, or is prevented from being established by reason of the importation and sale, or offer for sale in the United States of foreign merchandise or raw materials of the same kind or class at less than the cost of production in the United States, it shall be the duty of the

Secretary of the Treasury (hereinafter referred to as the "Secretary") or the appraising officer of the Bureau of Customs, or both, on a reasonable showing by such industry, to forthwith issue an order of suspected dumping, and pending full investigation of the facts, appraisement shall be withheld. Upon the filing of good and sufficient bond to cover the difference, if any, between the sale price or price at which offered for sale and the cost of production in the United States of the same kind or class of goods, wares, merchandise, or raw materials, said imported goods, wares, merchandise, or raw materials may be released.

"(b) On the issuance of an order of suspected dumping by the Secretary or the appraising officer of the Bureau of Customs, or both, the United States Tariff Commission shall forthwith investigate the facts of the suspected dumping, under the provisions of section 332 of the Tariff Act of 1930, and report the findings of fact to the Secretary and the appraising officer of the Bureau of Customs, which report shall be final."

Section 202 is amended so as to read as follows:

"(a) If the United States Tariff Commission should find in its report that the charge of dumping is sustained, the appraising officer of the Bureau of Customs forthwith shall levy and collect, in addition to the duties imposed thereon by law, if any, a special dumping duty on the imported merchandise or raw materials which was subjected to the order of suspected dumping.

"(b) The special dumping duty levied and collected as provided for in section 202 (a), shall be determined by the difference between the sale price, or the price for which the imported merchandise or raw materials was offered for sale, and the manufacturer's or producer's cost of production in the United States of the same kind or class of merchandise or raw materials."

Section 203 is hereby repealed.

Section 204 is hereby repealed.

Section 205 is hereby repealed.

Section 206 is hereby amended so as to read as follows:

"Sec. 206. That for the purpose of this title the cost of production of goods, wares, merchandise, or raw materials manufactured or produced in the United States shall be the sum of—

"(1) The cost of materials, fabrication, manipulation, or other process employed in manufacturing or producing the same kind or class of

goods, wares, merchandise, or raw materials as those imported and sold or offered for sale.

"(2) The usual general expenses (not less than 10 per centum of such cost) in the case of identical or substantially identical merchandise; and

"(3) An addition for profit (not less than 8 per centum of the sum of the amounts found under paragraphs (1) and (2) equal to the profit which is ordinarily added by the manufacturer or producer of the same kind or class of goods, wares, merchandise, or raw materials in the United States."

H. R. 7312 was referred to the Committee on Ways and Means and will be pending when the second session of the 76th Congress opens on January 15, 1940.

This proposed amendment to the Anti-Dumping Act of 1921 has long been considered and it grows out of various attempts to obtain enforcement of the 1921 law. A variety of bills have been suggested in the past year but they all sought to straddle the fence by using the ambiguous language in the present act, and some bills which have been suggested are much longer in text.

The report of the Committee on Ways and Means in 1921 at the time the present law was passed frankly states that the committee was trying to copy the Canadian and the South African customs laws. The committee said that the bill would only tend to relieve a condition where foreign countries periodically set about dumping goods in the American market below the possibility of Americans to compete with and the bill actually intended to fill the gap between annual tariff legislation.

● Unfortunately, the law was so vague and left such latitude to the administrative officers that they could choose to enforce it or ignore it at will, depending upon the expediency of it, and the act has been so administered. Successively, the several secretaries of the treasury have changed regulations, beginning with the most unreasonable regulations wherein they removed the requirement of consular invoices on such products as newsprint, lumber, wood pulp, and other large items imported. Out of it has grown quite naturally a lack of interest in enforcing the Anti-Dumping Act. Enforcement practices have so changed the intent of the law that in effect it has become null and void.

At the time the law was passed in 1921 foreign exchange clearances were stable and the international

marketing of goods was linked to the gold standard in the various countries. Since then conditions in international trade have become chaotic. Bartering has developed, some countries have refused to maintain a reasonable net return in marketing goods in other countries and dumping practices have developed in a world beset with trade wars and lack of stability in exchange so that the act in itself is obviously worthless.

● While many people have recognized the ineffectiveness of the 1921 law it has been impossible to convince the administrations in power that the men and women working in American industry needed protection against the world's trade wars. Instead, the policy of the State Department has been to give America's birthright away to the world.

However, in the last few weeks Congress seems to have found itself. Culminated criticism from a number of basic industries that have been shut down, forced to curtail because of inability to meet the onslaught of severe competition from foreign countries has so chagrined the members of Congress that they are beginning to think maybe there is something wrong with the Secretary of State's one man trade policy, unconstitutional as it undoubtedly is.

Repeatedly Congressmen have gone to the State Department only to be turned down by the simple statement that we must buy first if we desired to sell. This fallacy has laid our whole American commodity price structure open to the most vicious trade war without defense that has ever been experienced in our history.

Existing tariffs have become worthless due to depreciated currencies and to the Reciprocal Trade Agreements. With costs in the United States becoming fixed to a greater degree almost yearly American industry has been unable to compete with this foreign competition, subsidized in so many ways.

Hence, there is a great need for amendment of the Anti-Dumping Act of 1921, a vital need for a law that makes enforcement mandatory and that is based upon American costs. No one can say that if the amendment became law monopoly would ensue for it provides that the industry complaining must be capable of producing in excess of 10 per cent of the consumptive demand in the United States. The profit clause is simply a copy of the old dumping act covering actual cash

cost, then overhead such as administrative expenses, interest, etc., then 8 per cent of the total of these items is added, but it is not 8 per cent on depreciation not interest on the capital invested.

Those men in touch with the Congressional attitude toward the State Department's trade policy report that it is the belief of a great many members of both the House and the Senate that this amendment to the Anti-Dumping Act of 1921 is a highly effective method of protecting American workmen against the destructive effects of the State Department's Reciprocal Trade Agreement without openly repudiating that policy. The Trade Agreements would remain in effect and no foreign nation with whom we have these agreements would find their trade effected unless they attempted to sell their products in this country below American costs.

● This is a job creating measure first and last. Certainly there is every reason at this time to try and find jobs for highly paid American workmen. Congress has legislated

high wages which makes it absolutely essential to provide, sooner or later, the type of protection given by Representative Smith's amendment. What good is the Wage and Hours Law, the other legislation protecting the wages of American workmen and workwomen if foreign goods so undersell our own that there are fewer jobs in this country. High wages and protection against products from low wage paying foreign nations go hand in hand. They are inseparable.

A large number of industries aside from pulp and paper manufacturing are supporting Representative Smith's bill. Not only the industries are backing it but the unions in these industries, realizing that the standard of living of their own members is at stake, their very jobs, are wholeheartedly back of the move to make the Anti-Dumping Act effective.

It is likely that sufficient support will develop to place H. R. 7312 in the class of "must" legislation when Congress convenes on January 15, 1940.

### Pilot Plant Under Way For Vancouver Rayon Mill

● Until Paul Zuest, plant manager, returns from his present trip to Europe slow progress is expected in connection with the affairs of Vancouver Rayon Silk, Ltd., the new \$500,000 company which plans manufacture of rayon yarns and similar products at a \$2,500,000 mill in West Vancouver.

Preparation of a small test plant and finishing mill is now going ahead on the site formerly occupied by Capilano Timber Mills, but until Mr. Zuest completes his selection of technical key men and places orders for machinery no tentative date for commencement of operations will be set.

Mr. Zuest is expected to return to Vancouver some time in October.

### Vancouver Kraft Reorganization Completed

● Reorganization of the Port Mellon kraft mill under the name of Vancouver Kraft Corporation has been completed, but selection of officers and directors and plans for resumption of operation will not be made until market conditions improve, states W. E. Burnes, legal representative of the company.

Assets of the Vancouver Kraft Company, previous operators of the Port Mellon mill, were purchased by Columbia Paper Mills, Ltd., of Portland, and the new operating company was formed as a result of this deal.

The Port Mellon company's sawmill is now in operation under contract to Crofton Export Company, cutting about 125,000 feet daily.

Collapse of the Oriental market forced the shutdown of the kraft mill in the summer of 1937 after it had been in operation about seven months.

### Working on Deep River Project Organization

● Valentine Quinn, of Northern Construction Company, Vancouver, B. C., states that negotiations for establishment of a rayon pulp mill near Campbell River, Vancouver Island, are still in progress, although there have been no new developments within the past month.

Announcement that European interests propose establishment of a large rayon mill near West Vancouver has not affected the Campbell River project, according to Mr. Quinn, who expects that his company may be able to go ahead with its own program as soon as business conditions overseas become more settled.

Associated with Mr. Quinn in the Campbell River enterprise are J. P. and William Meehan, Vancouver timber brokers, who some time ago were working on a projected pulp mill for Squamish, the southern terminus of Pacific Great Eastern Railway on Howe Sound. This deal fell through when the city of Vancouver decided against sharing the Cheakamus waterpower site with private interests.

If the Campbell River scheme materializes, it is proposed to utilize waterpower at Elk River falls, where International Harvester Company and British Columbia Power Company have held power reserves for several years. Pulpwood would be bought in the open market.





PIONEER DIVISION, THE FLINTKOTE COMPANY'S 32-acre roofing, board and container plant in Los Angeles. The new solid fiber board and container producing unit is the sawtoothed roof building in the upper left hand corner. It is connected by a tunnel under 55th Street with the other units of the company's extensive operations.

## Pioneer Division, the Flintkote Co., Completes Solid Fiber Box Plant

**Large manufacturer of roofings, boards and corrugated fiber containers extends facilities of Los Angeles plant to produce solid fiber shipping cases**

**B**EGINNING its second half century in the manufacturing of roofings and boxboards, the Pioneer Division, The Flintkote Company at Los Angeles completed another unit in its program of expansion this spring with the establishment of a new solid fiber board production department and the construction of a complete, new fabricating plant for making both corrugated and solid fiber containers. This development, which was made at an estimated cost of \$250,000, rounds out the Pioneer-Flintkote line to include both the corrugated and the solid fiber containers.

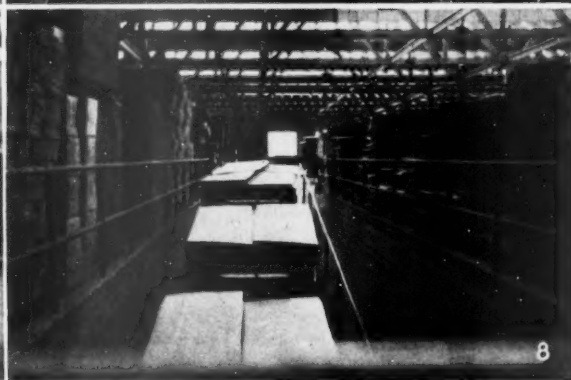
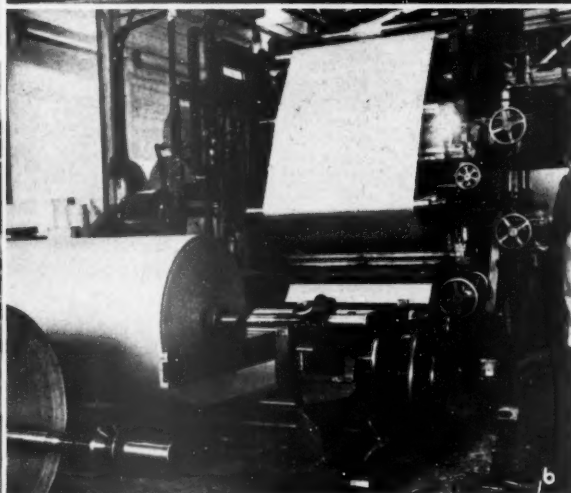
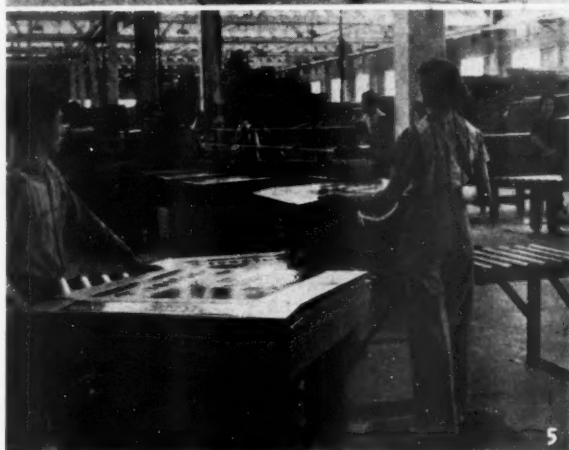
Ground was broken in November of last year for the fabricating plant on 55th Street, across from and opposite the original corrugated container plant, which itself was completed in the early fall of 1937. The new building in the main factory section is of single story saw tooth construction with steel sashes all around. The floor of the plant is of concrete and is built to a level such as to enable loading into and out of the

building by truck or box car on the same plane. The plant provides more than two acres of working area, having a floor space of 100,000 square feet. The southeast corner of the building carries a second floor which houses the sales offices of the container division. The Austin Company were engineers and builders of the plant.

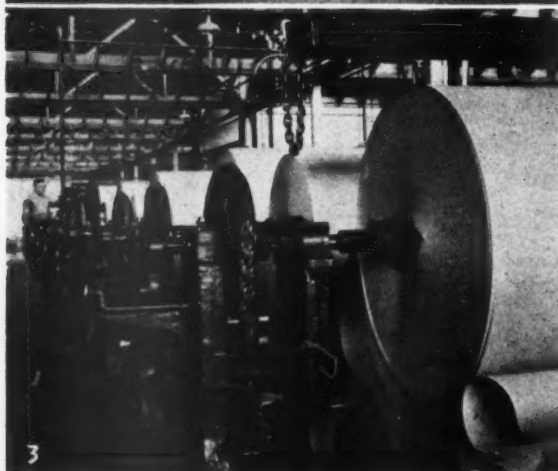
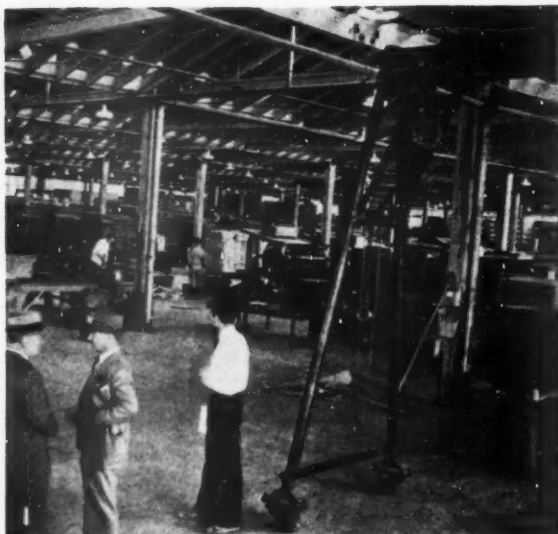
A railroad spur from the Southern Pacific main line runs along the north side of the building and provides space for ten freight cars for loading. The west side provides truck loading facilities and on the south side a specially constructed truck loading dock is installed which enables light trucks, of the specially designed over size body type for carrying large quantities of board containers, to back into the loading platform, off the street under cover.

With the completion of the new unit, all container fabricating equipment from the original corrugated container plant was moved into it. The No. 1 sheet plant (built in 1937) was converted into a board pro-





A. E. CARLSON, Manager of the Boxboard Division of the PIONEER DIVISION, THE FLINTKOTE COMPANY on the left in No. 1 and on the right, LORIN B. MILLER, Sales Director of the corrugated and solid fiber container division. In No. 2, on the left, is W. A. KINNEY, Production Manager for all of the Los Angeles manufacturing operations, and, on the right, H. O. WILLOUGHBY, superintendent of the container plants. No. 3, operating a hand taper in the new container plant. A stitching machine in operation is shown in No. 4. The automatic taper is shown in No. 5. In No. 6 is the corrugating machine. In No. 7 and No. 8 the tractor with trailers which transports board and other freight through the tunnel under 55th Street connecting the new container plant with the other units of the Pioneer Division, The Flintkote Company in Los Angeles.



duction and storage unit, housing the corrugating machines and the new solid fiber board manufacturing unit. This latter machine, a fifty-ton paster-laminator, laminates two to seven liners into solid sheets of the various weights desired. The machine is a special one having auxiliary units added to give it maximum speed and performance.

In the storage department of this building a five-ton crane is installed over the roll pit which enables speedy and efficient movement of rolls to machines.

The corrugated and solid fiber machines are parallel. Sheets are piled on skids which in turn are picked up by the specially designed tractor train for transport to the fabricating unit. The trailers were designed by the engineers of Pioneer-Flintkote to handle piles of sheets on skids and are said to be the first of their type.

The tractor trailer train of three hauling units, when loaded, moves into the newly constructed tunnel under 55th Street connecting the corrugated and solid fiber sheet making plant with the fabricating plant. This concrete, re-inforced steel tunnel is 200 feet long and large enough to permit a truck to pass through. The tunnel greatly facilitates the transportation of the sheets across the street to the container fabricating plant.

The fabricating plant, located in the new building, has sixteen machine units for slotting, slitting, creasing, trimming, stitching, taping, printing and folding. A new printer-slotter was added to the original machinery as was a special combination waxing and lacquering machine which waxes or lacquers the board to give it moisture resisting qualities. A blanking machine for solid fiber board was added, also.

Harold O. Willoughby is superintendent of the container division plants and Wm. C. Birdsey is his assistant. The expansion represented by the addition of the solid fiber board manufacturing and the new fabricating plant for both corrugated and solid fiber board has increased the number of employees to 450 and the payroll to more than half million dollars annually.

● A. E. Carlson is manager of the boxboard division. Lorin B. Miller, who recently joined the company as sales director of the corrugated and solid fiber container division, is a veteran in the paper industry. Mr. Miller was associated with the Chicago Coated Board Co. at Chicago, Illinois, from 1912 to 1920, serving as assistant manager at the time of his leaving the firm. From 1920 to 1931 he was manager and superintendent of the straw mill for the Robert Gair Co. of Quincy, Illinois, moving into an executive vice-presidency for the Robert Gair Co. in New York, in charge of sales and production of corrugated and solid fiber container division. In 1937 he was associated with the container division of the Central Fiber Products Co. as production manager in charge of all mill operations. Mr. Miller left to assume his present post with the Pioneer Division, The Flintkote Company, in 1938.

The section of the new building facing on 55th Street is decorated with glass bricks. In this section are offices for the estimating, art and designing departments, and also the offices of the planning, layout and schedules departments of the production division.

In the Pioneer Division's new solid and corrugated fiber board fabricating plant, Nos. 1 and No. 2 are general views of the plant, No. 3 shows the pasting and laminating machine for producing the solid fiber board and No. 4 shows the cut-off at the finishing end of the same machine.

Sales territories of the company are expanding rapidly and include the major portion of the west. With thirty-two acres of plant facilities the sales department has rightly adopted the slogan, "Acres of Service."

In the manufacture of the paper for the corrugated and solid boxboards, waste papers, mostly from southern California, in addition to kraft pulps from the Pacific Northwest mills and Sweden are used. The plant mixes its own paste for laminating. In the corrugated and solid fiber sheets the company has developed 75 colors and grades and types which as well as being used in manufacture of containers at the plant, are used by box makers up and down the Pacific Coast for folding cartons and setup boxes.

### Longview News Sticks To Domestic Newsprint

● The Longview Daily News in an editorial appearing recently explained its reasons for declining an offer of European newsprint at five dollars per ton under the domestic and Canadian price. Quoting in full:

● "A letter from a Portland importer of blank newspaper informs us that he can furnish foreign paper at a price that would save this newspaper five dollars a day on the amount it uses. Five dollars multiplied by 312 days means a saving of between \$1500 and \$1600 a year. We have no intention of buying foreign made newsprint. Not that we want to assume any 'what a good boy am I' attitude, but because we believe it is good business to use Northwest made paper.

"Furthermore, even though newspaper readers may have to bear this added cost, we still believe they are justified in this expenditure as by doing so they aid in providing employment and adding to tax values of all the important forest products industry of this section.

"In case of The Daily News we are paying 10 per cent more for newsprint manufactured within 75 miles of Longview than we would have to pay if we bought the same paper made thousands of miles away in some foreign country. At present we know of only two newsprint manufacturing mills in this state, one at Port Angeles, and one near Spokane. The only other mills in this area are two at Oregon City, Oregon.

"There was a time a few years ago when newsprint was made at both Camas and Vancouver. There is none of this type of paper made in Longview. Unfortunately, there is growing evidence that the production of newsprint over a period of years is decreasing rather than increasing. Consequently, much of this paper is being brought in from Canada and European countries. Just now the south is experimenting with the manufacture of newsprint from pine. A mill is being erected at Lufkin, Texas, as a testing plant.

"We cite this situation as an example of how some of the reciprocal trade agreements work out, and the whole question of protective tariff is involved. The present campaign on shingle quotas and prevention of exportation of peeler logs are other examples."

### Recent Paper Publications of Bureau of Standards

● A list of publications dealing with paper and related research, issued since the list given in National Bureau of Standards Letter Circular LC-447 was prepared, may now be obtained from the Bureau on request. The supplementary list covers the period April, 1937, to January, 1939.

Several important papers resulted from the studies related to the preservation of records. One deals with the results of an extensive study in the paper mill of the effects of filling and sizing materials on the stability of book papers. Others have to do with the quality and evaluation of motion-picture films used for documentation.

Other reports relating to the stability of materials were issued. One is on the durability of fiber building papers and boards. Another discusses the degradation of sulfate fiber by bleaching, with reference to the lack of stability found sometimes in kraft envelopes.

No. 1 shows the discharge side of the new solid fiber blanking machine. No. 2 is a view of the printer-slotter. No. 3 shows part of the combination lacquering and waxing machine for producing a moisture resistant board. In No. 4 appears the partition slitter.





# Book Paper Investigation Reaches Pacific Coast

**Hearing held for Inland Empire Paper Company in Spokane, for the Everett Pulp & Paper Company in Seattle and for the Schmidt Lithograph Company in San Francisco.**

**N**EW YORK, Duluth, Spokane, Seattle, San Francisco and way points, or from World's Fair to World's Fair and back, again, reads the itinerary of the Federal Trade Commission's trial examiner and counsel who are looking into the methods of pricing employed by the members of the Book Paper Manufacturers Association.

As trial examiner Charles F. Diggs and the Commission's counsel R. J. Martin move from city to city for hearing after hearing, Robert E. Canfield of Wise & Canfield, New York, counsel for the Book Paper Manufacturers Association, and Edward Burling, Jr., of Covington, Burling, Rublie, Acheson & Shorb of Washington, D. C., special counsel, traveled along, too, to protect their clients' interests.

From a hearing in Duluth, Minnesota, on July 11th where officials of the Northwest Paper Company of Cloquet were placed on the witness stand, the party journeyed west to Spokane to make notes on what A. W. Witherspoon, president and Chester A. Buckland, general manager of the Inland Empire Paper Company, had to say.

Six days after the FTC men left Duluth they opened the hearing in Spokane on July 17th. Mr. Witherspoon testified that he assumed the presidency of the Inland Empire Paper Company in 1934 upon being asked to reorganize it because of the concern's heavy indebtedness. He told of arrangements for a \$500,000 loan from the Reconstruction Finance Corporation for the purpose of modernizing certain equipment and for purchasing new machinery to enable the company to produce a wider variety of papers. The Inland Empire Paper Company, Mr. Witherspoon said, had under his management, endeavored to diversify its products by producing higher grades, including book papers, which would bring better prices than did newsprint, the company's principal product since it was established.

● Mr. Buckland, as general manager, testified that he was in charge of manufacturing and sales. He told the FTC's representatives that last year the Inland Empire Paper Company produced less than one-fiftieth of one per cent of the total book paper sold in the United States.

Sales of book paper were limited to Zone 4, Idaho, Washington, Oregon, Utah and California, Mr. Buckland said, and inquiries from Zone 3 had always been rejected as prices in that area were too low.

Mr. Buckland stated that his company

always followed competition in quoting prices and that so far these prices had been below the cost of production at Millwood. He added that he had never discussed prices with a competitor nor had he entered into any agreement on prices with a competitor. Inland Empire had never been represented at any meeting of the Book Paper Manufacturers Association or at any of its executive committee meetings.

Trial examiner Diggs adjourned the hearing and announced the next one would be in Seattle at 10 a. m. on the morning of July 21st in the U. S. Customs court room in the Federal Office Building. Association counsel Canfield and Burling demurred, asking that the trip be expedited by holding the hearing the next morning, July 18th, as it was only an overnight train journey (325 miles) from Spokane to Seattle. They were overruled and the hearing began on the 21st. It was scheduled to take two days.

## The Seattle Hearing

● Sometime after 10 o'clock trial examiner Diggs opened the hearing which was staged with the help of five microphones attached to a dictaphone, and two court reporters, and Mr. A. H. B. Jordan, president of the Everett Pulp & Paper Company of Everett, Washington, took his place on the stand and was sworn in as the first witness.

Mr. Jordan testified that he had been associated with the Everett Pulp & Paper Company for 43 years and had been president for the past 2 years since the death of Mr. William Howarth. The company is a Washington corporation, Mr. Jordan said, and was established in 1892. He joined the concern in 1896 and prior to becoming president had always been in charge of manufacturing, for many years as vice-president. He said his duties did not include the setting of prices which was the responsibility of Mr. William J. Pilz who has full charge of sales.

The second witness was Mr. Anson B. Moody, who identified himself as assistant secretary. Mr. Moody said he had been with Everett for 12 years, the last 4 as assistant secretary. His work, he told the examiner, was of a liaison type between the sales and manufacturing departments. He said he had nothing to do with price determination.

The third witness was Mr. William J. Pilz who was identified as vice-president, assistant treasurer, manager, sales manager and a director of the Everett Pulp & Paper Company.

Mr. Pilz said he joined the organiza-

tion in 1902, worked in the mill a few months then became in succession, office boy, bookkeeper, order clerk and office manager. In 1928 he was made manager and in 1931 vice-president. His principal duties, he told FTC counsel Martin, embraced sales and finance.

In his testimony Mr. Pilz stated that Everett has been making book papers since 1896 and that these papers have been sold primarily in California, Oregon and Washington with lesser quantities being sold in Montana, Idaho, Colorado and in Arizona. Paper is also marketed in the Eastern part of the country and a large export business is done by the company.

The Book Paper Manufacturers Association was formed, Mr. Pilz said, following the NRA as a medium for obtaining information on laws and regulations. He pointed out that an individual manufacturer was almost helpless against the flood of laws and regulations applied to business by the present administration and that the association was of assistance in keeping the mills posted on matters pertaining to such legislation as the Walsh-Healey law, the Robinson-Patman act, the Wagner law, etc.

Along with others, Mr. Pilz said, his own mill reported production statistics to the association and in return received statistics from the association covering the production of the industry as a whole but not of individual mills.

He said that his mill did not furnish any advance price information to the association and pointed out that the association reports in the hands of the FTC did not show individual mill prices. At the end of each month Everett reports the total dollar value of its sales to the association.

Everett has filed price lists with the associations at various times but not regularly. Only prices in effect have been filed, no future prices, he testified. Usually the report goes into the association several days after the prices have been announced as merchants handling Everett's papers are notified as quickly as possible and that takes considerable time. Prices are on a delivered basis Mr. Pilz said, and have been to his knowledge since 1902.

Mr. Martin showed him the zone map which the FTC is employing as part of the basis for its investigation of alleged price control by the members of the association, and Mr. Pilz said he had seen it but did not know who drew the map.

Mr. Pilz pointed out that the differential in prices between Zone 4 and Zone 1 were almost identical with the freight charges between Zone 1 and



Zone 4, and that this differential had existed long before the NRA or the association or the drawing of any map. He said it was a natural difference based upon freights.

Mr. Martin then showed Mr. Pilz a number of FTC exhibits including some of Everett's price lists. Mr. Pilz was able to identify some of these but not others.

Mr. Pilz outlined his company's sales organization and policies. No, he said, they did not stick to one form of contract but varied it with the circumstances surrounding each one. No, Everett does not get out Zone price lists for Zones 1 and 2.

"Does cost of manufacture govern your prices?" asked Mr. Martin. Mr. Pilz replied that it did not, that their merchants had to be kept on a competitive basis.

"Do Eastern book mills sell on the Pacific Coast at a 60-cent differential over Zone 1 prices," asked counsel Martin. Mr. Pilz replied he presumed they did but did not know definitely of his own knowledge. He said there was no general price increase in the Spring of 1937 and that there was no company in the industry that could be called a price leader.

Mr. Pilz told attorney Martin that price had never been discussed in any meeting of the Book Paper Manufacturers Association that he had attended. No competitor had ever advised him of a change in price, nor had Everett ever agreed with any other manufacturer to establish a certain price.

The main subject discussed at the meetings he had attended was legislation. Mr. Pilz remarked in answer to a question as to what went on in the association meetings.

Not since the NRA days has the association advised the mills of prices filed by others Mr. Pilz told Mr. Martin in answering the direct question.

The zone distribution of Everett's sales are about as follows: 5 per cent in Zone 1; less than 1 per cent in Zone 3; balance in Zone 4. No paper is sold in Zone 2, Mr. Pilz said.

Division of domestic sales by states is as follows: 6.33 per cent in Washington; 3.30 per cent in Idaho, Montana and Utah; 5 per cent in Oregon; and, 84 per cent in California.

Everett always sells through merchants although contracts are sometimes made direct with consumers.

His mill will always meet competitive prices, Mr. Pilz stated, regardless of costs. Everett has never initiated a price change but always follows a change by some other mill.

● The hearing for which two days had been allotted by trial examiner Charles F. Diggs, lasted but two and one-half hours. Mr. Diggs announced that the next hearing would be on July 27th (six days later) in room 548 of the Federal Office Building in San Francisco at 10 a. m.

Association counsel protested the delay as unnecessary and asked that the San Francisco hearing be held the following Monday morning, July 24th, to save three days. Federal Trade Commission counsel R. J. Martin explained that there was only one room in the San Francisco building that could be used

for the hearing and that other FTC hearings would keep it occupied until Thursday morning, July 27th.

### The San Francisco Hearing

● The transcontinental series of hearings of the Federal Trade Commission charges against the Book Paper Manufacturers Association, its officers, and members, came to its westernmost scene July 27th when officers and employees of the Schmidt Lithograph Co., San Francisco, were examined in the Federal office building.

Charles F. Diggs, trial examiner, Federal Trade Commission, presided at the hearing, at which H. J. Anderson, purchasing agent, Schmidt Lithograph Co., was the principal witness. Questioning was conducted by R. J. Martin, Commission counsel.

The officers of the company, Richard Schmidt, president; Carl Schmidt, vice-president and general manager; P. A. Powers, secretary and credit manager; and George Taylor, assistant secretary and office manager and in charge of the estimating department testified that the coating plant operated by the Schmidt Lithograph Company was for the purpose of producing paper for their own use mainly, and that the sale of it was completely secondary and had been delegated to the purchasing department. Therefore they had no knowledge of prices.

Anderson testified that he alone determined the price at which the company sold its paper and that he followed the price list of the Oxford Paper Co. from whom they buy much paper.

He said that his company followed trade customs and that as a matter of fact as a buyer, he became familiar with trade customs long before he became a seller. He said that he thought that trade customs were just as valuable to sellers as to buyers.

Anderson stated that he had been familiar with the paper market as a buyer for the past 24 years and he felt that the market on book paper is competitive both as to price and as to quality, and that it is as competitive now as it was 10 years ago.

Robert J. Martin was the attorney for the Federal Trade Commission; F. M. Fish, counsel for the Schmidt Lithograph Co.; R. S. Canfield and Edward Burling, Jr., served as counsel for the association.

It was brought out at the examination that the Schmidt Lithograph Co. does business in its coated paper in California, Honolulu, and to a slight extent in Oregon, Washington, and British Columbia.

### Fibreboard Holds Big Golf Tournament at Vernon

● Results of the golf tournament held by the Vernon Division, Fibreboard Products, Inc., were announced in the July-August Fibreboard Bulletin. Grant Farmer came off with top honors and won the first prize, a fine golf bag, donated by the Fibreboard Recreation Association. Second prize went to Bob Walters, assistant converting plant manager, his prize was an electric grill donated by Listenwaller & Gough. Third prize, a cocktail set, went to Jack Grady of the sales department, donated by California Electro Co. Other winners and prizes with donors were: fourth place, Murray Brown, master mechanic, zipper bag, A.

E. Staley Co.; fifth place, Harold Shibley, electric clock, Pacific Coast Supply Co.; sixth place, Bruce Brown, resident manager, travel set, Shuler & Benninghofen Co.; seventh place, Miles Searey, sales dept., syphon bottle, Union Hardware Co.; eighth place, Bill Ford, clerk, Woerz Paste & Gum Co.; ninth place, Harry Miller, office manager, club covers, Wallis Rice Co.; tenth place, Walter Johnson, sales dept., bill fold, Wm. E. Phillips Co.; eleventh place, Russ cotner, ash tray, Morrill Ink Co.

Twelfth place, Jim Nash, clerk, ash tray, Albany Felt Co.; thirteenth place, Joe Porter, sales dept., golf balls, California Ink Co.; fourteenth place, Hoby Watts, golf balls, California Ink Co.; fifteenth place, J. A. McDaniels, sales dept., California Ink Co.; sixteenth place, Cort Majors, sales manager, golf balls, Bluemle & Gibson; seventeenth place, Russ Reynolds, clerk, golf balls, Bluemle & Gibson; eighteenth place, Floyd Blower, clerk, golf balls, W. A. Goodman & Sons, nineteenth place, Ollie Noble, Bedeaux manager, golf balls, W. A. Goodman & Sons; twentieth place, Al Adams, asst. Bedeaux manager, golf balls, Huntington Rubber Mills; twenty-first place, Jasper Tudor, sales dept., golf balls, Huntington Rubber Mills.

Twenty-three golfers turned out for the tourney. Grant Farmer was the organizer of the meet, ably assisted by J. A. McDaniels and Murray Brown. The match occurred June 17 at San Gabriel Country Club.

### Canada Charges Board and Box Companies with Monopoly

● Creating a precedent with wide implications, the Canadian government has initiated combine proceedings against a large number of manufacturers of paperboard shipping containers and related products. Canadian Boxes, Ltd., Vancouver, headed by J. H. MacDonald, is one of the British Columbia companies involved.

The paperboard industry was investigated by F. A. McGregor, commissioner under the Canadian Combines Act, and his report asserted that a combine existed. The report was forwarded to the attorneys-general of Ontario and other provinces, but in most cases the provincial governments decided against prosecution on their own account in view of the widespread ramifications of the companies and the necessity for costly litigation.

However, the Dominion government has now proceeded with the prosecution itself, and has appointed J. C. McRuer to take charge of the case.

This is the first time that the Canadian government has taken action of this kind. The Dominion has prosecuted in the past, but invariably upon the request of one or more of the provinces.

### They Must Be Cheaper

● The Scottish Farmers' Dairy Co., Ltd., of Glasgow, one of the largest milk distributing concerns in Scotland has decided to adopt cardboard cartons for the distribution of milk, and the use of bottles is to be discontinued, according to the World's Paper Trade Review which is published in London.

# TAPPI Announces Second Contest For Dinner Meeting Papers

Announcement of Second Shibley Award Contest for the best paper presented at one of the 1939-1940 Dinner Meetings sponsored by the Pacific Section of TAPPI, follows the success of the first competition—Dates of and places of Dinner Meetings announced.

THE success of the first Shibley Award Contest has caused the Executive Committee of the Pacific Section of TAPPI to announce the second contest for the best paper presented by a mill man at one of the 1939-1940 Dinner meetings.

In the first contest, embracing the Dinner Meetings of the 1938-1939 season, six men participated, presenting five papers. Of these, the paper given by L. A. Wendt of the Everett Mill, Pulp Division, Weyerhaeuser Timber Company, entitled, "A Discussion of the Operation of Photo-Electric Consistency Controllers," was adjudged the best and Mr. Wendt was presented with the Shibley Award, a check for \$50, by W. H. Swanson, vice-president of TAPPI, at the joint meeting in Tacoma on June 3rd.

The Executive Committee of the Pacific Section of TAPPI in announcing the second contest, urges more men in Pacific Coast pulp, paper and board mills to participate for the \$50 prize. The award will be made at the National TAPPI meeting which will be held in Seattle late in August or early in September of 1940. In view of this convention no joint meeting of the Pacific Section of TAPPI and the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association will be held in June of 1940.

## The Shibley Award Rules

● Three rules govern the Shibley Award contest. The papers are judged by the Executive Committee of the Pacific Section upon the following points:

1. The amount of interest shown by the audience at the meeting where the paper is presented.
2. Presentation.
3. Technical value.

All papers must be submitted in quadruplicate to the vice-chairman of the Pacific Section, Fred A. Olmsted, who is technical supervisor of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation at Camas, Washington.

The papers may be on any sub-

ject dealing with some phase of the pulp and paper industry. Engineering subjects are particularly welcome as are papers dealing with chemical subjects.

Papers should be in the hands of the vice-chairman at the earliest possible date. Those intended for presentation at the first Dinner Meeting of the year, October 3rd at Seattle, should be submitted by September 15th.

The Shibley Award is named in honor of the late Kenneth Shibley, active member of TAPPI, who first suggested the contest as a means of stimulating the younger men in the industry.

In a talk before the Dinner Meeting in Camas last April 4th, William R. Barber, technical director of the Crown Zellerbach Corporation, called the Shibley Award, "The Young Man's Opportunity." He pointed out that the award was incidental in value compared with the personal development resulting from the effort put forth to organize, write and present a paper. He also emphasized the value of this personal work to the mills for whom the participants are working.

Said Mr. Barber, "Each of these six men who have made the effort to compete in this first year of the Shibley Award must surely know within himself that he is the better off for having done so, regardless of the prize. In the first place he is a more intelligent human being; he has accumulated some items of

knowledge that he did not possess before; he has thus put some money in the bank, so to speak, as regards his position in the industry in the years to come. He has enlarged his capacity for conveying his thoughts and convictions to others. Perhaps in the preparation of his paper and its presentation he has made mistakes which he himself is now able to discern. These should be the profits of experience. I cannot, nor would I praise these men, but I do commend them, because they have taken the opportunity offered them to do something for themselves; they have shown a capacity and inclination to do their own thinking."

## Dinner Meeting Schedule

● The schedule of Dinner Meetings is published on this page. The place of each meeting will be announced in the preceding monthly issue of PACIFIC PULP & PAPER INDUSTRY.

The programs will be in charge of a committee consisting of George H. McGregor, past chairman of the Pacific Section of TAPPI and general superintendent of the Longview Mill, Pulp Division, Weyerhaeuser Timber Company, and Clarence Engthouse, technical supervisor of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation at West Linn, Oregon. Fred A. Olmsted, vice-chairman of the Pacific Section, will be ex-officio chairman of the committee.

## TAPPI Dinner Meetings Scheduled for 1939-1940

Seattle.....	October 3, 1939
Camas.....	November 7, 1939
Tacoma.....	January 9, 1940
Everett.....	February 6, 1940
Portland.....	March 5, 1940
Port Angeles.....	April 9, 1940
Vancouver, B. C.....	May 4, 1940

# Camas Team Wins State-Wide First Aid Meet

**Rayonier Incorporated Port Angeles Division Team Takes Second Place Honors in Divisional Contest**

● Duplicating its victory in the inter-mill first aid contest which was held in Shelton, Washington, June 9th, the team from the Camas, Washington, mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, took first place in the State-Wide First Aid Contest held in Olympia, Washington, on July 29th.

The Camas mill team was first in the final contest, in which competed the best teams from the divisional contests, with a score of 97.2. In the Pulp and Paper Division the

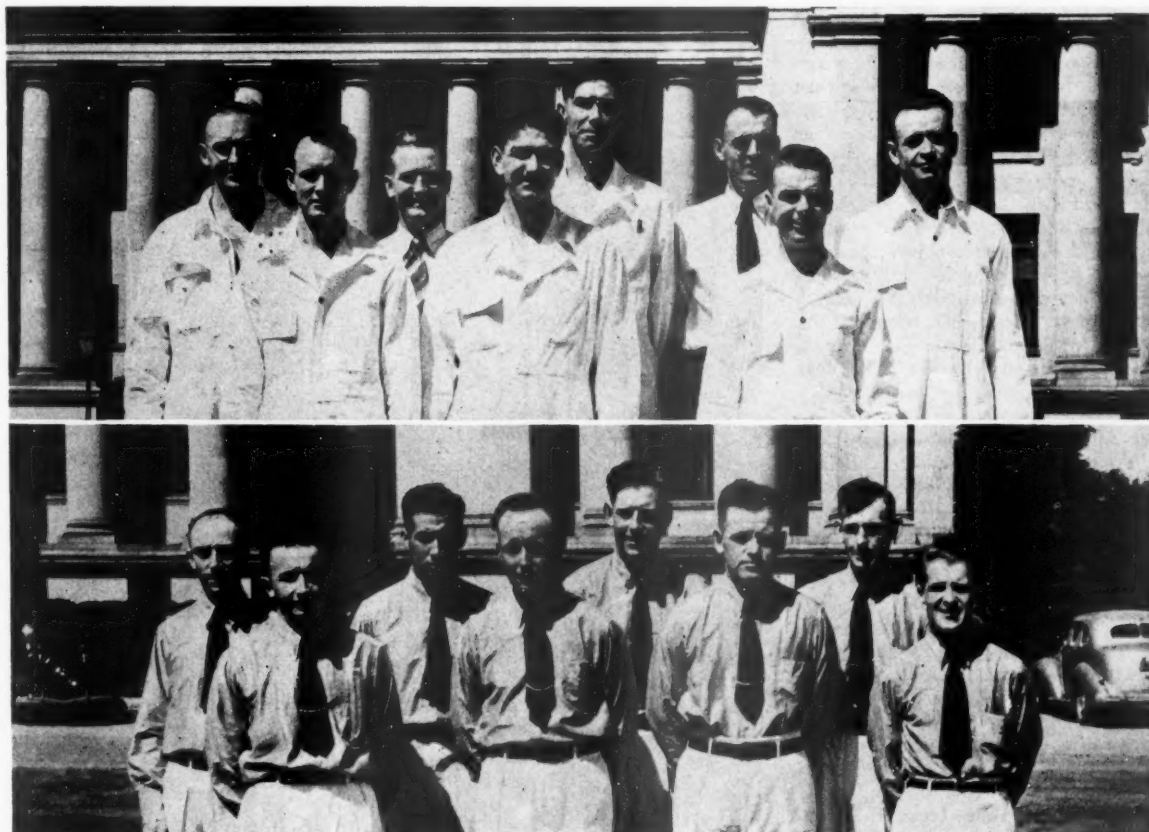
Camas team took first with 99 and the Rayonier team from Port Angeles took second with 98.2.

In the finals the Camas team competed against teams from the Mutual Lumber Company at Bucoda, which took second place with 95.2, the King County Sheriff's Office in Seattle, the Pacific Car & Foundry Company of Renton, and the Puget Sound Power & Light Company at Bremerton, which was third with 94.

The problems which the Camas team solved so efficiently in the final contest were:

1. Man hit by speeding automobile.
2. Carpenter fainting and falling 18 feet from scaffold.
3. Man overcome by carbon monoxide gas and suffering bad burn from electric heater as he fell.

Fred Pontin, first aid instructor for the Washington State Department of Labor & Industries, was chief judge and was assisted by James Westfield, safety engineer, U. S. Bureau of Mines, Seattle and by W. C. Crait of Rayonier Incorporated, Port Angeles.



The **BEST FIRST AID TEAM IN WASHINGTON**, the team from the Camas Washington mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, in the top picture. Members in the picture are: J. H. RICKARD, team captain; E. W. WHITE, L. W. BAILIE, G. QUILICI, HUGH MASON, patient; FRED WEAKLEY, BEMAS HUTCHINSON, J. D. HOLMES.

The team from **RAYONIER INCORPORATED** at Port Angeles took second place in the Pulp and Paper Division Contest. In the picture are: F. M. BEAL, captain; ELMER GALLOWAY, EARL HENRY, RILEY NELSON, ERNIE VIRGINIA, HAROLD OREM, PAUL LUSK, alternate; KERMIT FISHER, team representative.



## Otto Erickson Honored For Fifty Years Service at West Linn

Louis Bloch, Chairman of the Board of Crown Zellerbach Corporation presents Mr. Erickson with 50 Year Service Pin at a luncheon in his honor in San Francisco on the occasion of his completing a half century as millwright at West Linn.

ON August 15, 1889, a young man, only a short time gone from Sweden, traveled up the Willamette river aboard the stern-wheel steamer Latona, from Portland to Oregon City, and reported to the foreman of construction to work as carpenter on the new Willamette Pulp and Paper Co. plant. Fifty years later, having worked continuously in this one mill, the same man was feted by executives of the Crown Zellerbach Corp. in San Francisco, in honor of his long service. This man is Otto Erickson, millwright in the company's big mill at West Linn, Oregon.

At the conclusion of his 50 years of work Mr. Erickson, together with Mrs. Erickson, traveled on the fast Cascade train to San Francisco as guests of the corporation. Shortly before noon on August 15, Mr. Erickson was received by Louis Bloch and a group of ranking executives in the council room of the company. At this time he was presented with a diamond studded service pin by Mr. Bloch, chairman of the board of the Crown Zellerbach Corp., who himself wears a 45 year service pin. At the end of this ceremony a luncheon was held at the San Francisco Commercial Club.

That afternoon he visited the Golden Gate International Exposition on Treasure Island, with Mrs. Erickson. One of the things of greatest interest to him at the Fair was a colored photograph in the Crown Zellerbach Corp. exhibit, a picture of the mill which he helped to build 50 years ago.

There are some unusual points of interest in his long record of service. In the first place, this mill is the only one in which he ever worked. He completed 50 years without any accidents and with only five days lost-time from the job. This five days was only because of a knee infection, because of which the doctor ordered him to bed. This was the only occasion on which he was away from work.

His safety record is an unusual accomplishment, being practically perfect half a century. This is particularly notable since he worked in the early days when lost-time in-

juries seemed to be the rule rather than the exception. As a matter of fact in 1913 one Pacific Coast paper mill had an accident record of 547 lost-time accidents among 1000 men. Carelessness, inadequately shielded machinery, playing pranks on other workers, and the long working hours were responsible for the high toll in pioneer days. On one occasion Mr. Erickson worked a 54-hour stretch along with Clarence Bruner, now resident manager of the West Linn mill.

An interesting comparison of early conditions is made by the safety record of 1939, which showed

only 20 lost-time accidents for each million man hours worked in the entire Pacific Coast paper industry. The great improvement has been made possible through cooperation of management and workers in safety education.

● Mr. Erickson was born in Sunne County, near Stockholm, Sweden, on February 15, 1868, and is now 71 years old. As a boy he helped his father cut and pile wood in charcoal pits and helped to tend the fires. He also helped to build scows and other boats, obtaining carpenter training which was of great value when he came to the United States.



OTTO ERICKSON back on the job at West Linn after his trip to San Francisco with Mrs. Erickson as guests of the Crown Zellerbach Corporation upon the occasion of his having completed his 50 years as millwright at West Linn.



At 17, he came to the United States, going from New York to a town in Minnesota, where he worked the first winter cutting cordwood by contract. From there he went to Tacoma, Washington, and obtained a job working on the construction of four grain elevators at Pendleton and other Oregon points. Just after this on August 15, 1889, he went to work as a carpenter at the Willamette Pulp and Paper Co. plant at West Linn at wages of \$2.50 a day for ten hours.

During the period of construction he changed over to the work of millwright, receiving an increase of .50c a day. Although hours and pay schedules have been revised many times since, Otto Erickson has stuck to this post of millwright for 50 years.

On August 29, 1900, he was married to Louella Bruner, sister of Clarence Bruner. They now have three daughters. Mrs. Paul DuClos of Seattle makes frequent trips to Oregon City, bringing the grandchildren, Joan DuClos, age 6, and Paul DuClos, age 3. Miss Veda Erickson is a technician in the Franklin hospital in San Francisco. The youngest daughter, Helen, remains at home, looking after the family.

Mr. Erickson's hobbies are hunting and fishing, and he is known as being one of the best fishermen in the Oregon City district. His ambition is to keep on working for at least another year or so. "It's a good outfit to work for and I kind of got into the habit of showing up at the West Linn paper mill every morning," he says. "Then there was a fellow told me once that the second 50 years were the easiest and I would like to try it."

He is a member of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. He also is an active member of the Knights of Pythias and Woodmen of the World and has taken part in their activities for many years.

### Dr. Hoffman Visits Pacific Coast Mills

● Dr. Walter F. Hoffman, technical director of the Northwest Paper Company at Cloquet, Minnesota, was a Pacific Coast visitor early in August. Dr. Hoffman visited several mills before returning to his home in Cloquet.

### Webster Makes Eastern Trip

● William T. Webster, general superintendent of the St. Regis Kraft Company of Tacoma, producers of bleached sulphate pulp, left August 8th on a business trip east which will require several weeks time.

## Rayonier Reports Lower Profit For 1939 Fiscal Year

**Profit affected by decline in 1938 domestic rayon production coupled with disturbance of Oriental market—U. S. rayon production back to 1937 level in first six months of 1939 promising improved dissolving pulp market—During fiscal year Rayonier invested \$2,023,388 in plant, equipment and timberlands—Paid direct taxes equal to \$425 for each employee**

IN presenting on July 17th the annual report of Rayonier Incorporated for the fiscal year ending April 30, 1939, President Edward M. Mills said in part, "Notwithstanding the present unsettled world conditions, the management of the company looks upon the future of the dissolving pulp business with optimism. It appears reasonable to assume that there will be a continued expansion in world usage of rayon yarn, staple fiber, cellophane, plastics and numerous other commodities where dissolving pulps may be economically applied."

The results of Rayonier Incorporated's operation for the 1938-1939 fiscal year are generally considered to be good in view of market conditions existing during the period covered by the report.

In an independently audited annual report for the year ended April 30, 1939, the company showed consolidated net profit of \$1,176,647 after all charges including depreciation, depletion, interest, loss on projects abandoned and retirements, and federal income taxes, equal to \$1.88 a share on 626,205 shares of \$2 cumulative preferred stock outstanding. This compares with consolidated net profit of \$3,124,703 for the preceding fiscal year, equal, after regular dividends on 626,205 shares of \$2 cumulative preferred, to \$1.94 a share on 963,872 common shares.

### Final Quarter Loss Declines

● For the first nine months of the last fiscal year, company reported net profit of \$1,421,431 after depreciation and federal taxes. This would indicate a loss of \$244,784 for the final quarter of last year. For the first nine months of the preceding fiscal year ended April 30, 1938, the company and its predecessors reported earnings of \$2,758,587, indicating a loss of \$366,116 for the final quarter of that year. Rayonier had a loss of \$183,264 in the first quarter of the last fiscal year, a profit of \$64,895 in the second quarter, and a profit of \$1,539,800 in the third quarter. The profit in the latter quarter was achieved largely as the result of resumed shipments of dissolving pulp to Japanese consumers in December, last.

Sales for the year just ended totaled \$10,049,431, compared with \$17,496,025 in the preceding year, a decrease of \$7,446,594 or 42.56%. In the year ended April 30, 1937, the combined statement of predecessor companies showed sales of \$13,278,021.

### Dissolving Pulp Sales Off 55%

● Unit sales in the year ended April 30, last, totaled 130,597 tons, compared with 240,988 tons in the preceding year.

The company sold a total of 89,583 tons of dissolving pulps in the 1939 fiscal year, compared with 202,805 in the preceding year, a decline of 55.8%, 24,102 tons of paper grade pulps compared with 23,520, and 16,912 tons of fine paper pulps compared with 14,663.

A comparison of pulp and paper tonnage sold in various markets during the last two fiscal years follows:

	U. S. A.		
	1939	1938	
Dissolving pulps .....	52,685	70,688	
Paper pulps .....	24,080	23,318	
Fine papers .....	13,130	11,391	
Total .....	23,895	105,397	
Japan		Other	
1939	1938	1939	1938
28,952	97,847	7,946	34,270
	189	22	13
		3,782	3,272
28,952	98,036	11,750	37,555

In a review of the domestic markets, Edward M. Mills, president, said in part: "The rapid decline in business activity which began in 1937 resulted in an accumulation by rayon producers of unwieldy inventories of pulp as well as rayon yarn, which had to be substantially reduced before additional purchases of pulp could be made. Since early in the calendar year 1938 excess inventories of rayon yarn and of dissolving pulps have been moving into consumption, with the result that a more healthy condition with respect to such inventories in the hands of rayon producers presently exists. The consumption of rayon yarn and staple fibre has increased substantially and from the level which prevailed throughout the first half of the calendar year 1938 . . . The improvement which has occurred is reflected in the fact that production for the first six months of 1939 has been at approximately the average of 1937, which was a year of peak production."

### Japanese Market Situation

● Concerning the Japanese situation, Mr. Mills said: "A large part of the pulp sold by the company in foreign markets for rayon production has been sold in Japan where, prior to the past fiscal year, heavy pulp inventories had been acquired. By the end of the calendar year 1938, these inventories were largely used up and orders were placed during December, 1938, under which the company supplied 28,952 tons. No other orders were received from Japan during the fiscal year, but in June, 1939, additional orders were placed under

which 16,800 tons are being supplied by the company over the remainder of the calendar year."

As of April 30, last, dividend arrearage on the \$2 cumulative preferred stock amounted to \$1.67 a share, or a total of \$1,67 a share, or a total of \$1,043,676. One regular quarterly dividend of 50 cents a share was paid on July 1, 1938, and further dividends were deferred. No dividends were paid on the common stock during the year.

### Current Position Improves

Deferment in preferred dividends was stated to reflect the reduced volume of business and the necessity of maintaining net working capital in accordance with provisions relative to a long term loan obtained by the company during the year in the amount of \$8,000,000. The agreement provides that Rayonier will not declare any dividends which will reduce net working capital below \$3,000,000 after providing an amount estimated as sufficient for completion of the company's new plant at Fernandina, Fla. As of April 30, last, the estimated amount set up for completion of the plant was \$1,435,000. Construction of the plant was slowed down in the early part of 1938 and no definite date has been set for completion. However, it is said to be proceeding on a schedule whereby all major construction work will probably be completed by the end of the calendar year.

Balance sheet as of April, 1939, shows current assets of \$6,026,406, including cash of \$2,768,089, compared with total current liabilities of \$1,849,160, a ratio of 3.26 to 1. A year earlier, current assets aggregated \$5,330,324, including cash of \$793,781, compared with current liabilities of \$4,294,406, a ratio of 1.24 to 1. Working capital as of April 30, last, amounted to \$4,177,246, compared with \$1,035,919 on the like date in 1938. Inventories as of the end of last fiscal year stood at \$2,091,744, compared with \$2,825,627 on the like date in 1938.

### Income Account Comparison

Independently audited income account of Rayonier Inc., for the year ended April 30, 1939, compares as follows (statement for the year just ended compares with a combined statement of predecessor companies for the year ended April 30, 1937:

	1939	1938	1937
Sales .....	\$10,049,431	\$17,496,025	\$13,278,021
Cost of sales and operating expenses .....	7,196,851	12,257,544	9,285,624
Operating income .....	\$2,852,580	\$5,238,482	\$3,992,397
Other income (net) .....	3,392	27,930	11,370
Total income .....	\$2,855,972	\$5,266,412	\$4,003,767
Depreciation .....	\$1,095,074	\$1,056,182	\$861,990
Depletion .....	52,583		
Interest and amortization .....	266,392	246,331	243,570
Projects abandoned .....	12,368	52,715	20,512
Loss on retirements .....	6,685	148,044	127,081
Miscellaneous expense .....	6,946	16,779	6,870
Normal income taxes .....	239,277	558,444	404,422
Surtax on undistributed profits .....		63,213	96,000
Net profit .....	\$1,176,647	\$3,124,703	\$2,243,320

### Balance Sheet

Independently audited consolidated balance sheet of Rayonier Inc., and its

wholly-owned subsidiary, Georgia Timber Co., as of April 30, 1939, compares as follows:

ASSETS		
	1939	1938
Cash .....	\$2,768,089	\$793,781
Accounts and acceptances receivable .....	1,106,008	1,599,654
Inventories .....	2,091,744	2,825,627
Timberland sales contracts receivable .....	60,565	111,262
Total current assets .....	\$6,026,406	\$5,330,324
Employee loans .....	26,100	27,000
Investments, cost or less .....	11,239	11,239
Property, plant and equipment .....	15,352,927	16,021,005
Construction in progress .....	6,135,114	4,695,374
Land used for plant .....	407,155	387,469
Timberlands and timber (net) .....	1,484,393	1,423,901
Contracts, options, etc. ....	21,600	21,600
Deferred charges .....	219,128	234,107
Total assets .....	\$29,684,062	\$28,152,019
LIABILITIES		
Notes payable to banks .....	\$750,000	\$1,500,000
Timberland purchase obligations .....	63,217	244,520
Accounts payable and accrued expense .....	800,943	1,929,886
Provisions for income tax .....	235,000	620,000
Total current liabilities .....	\$1,849,160	\$4,294,406
Term notes payable to banks .....	7,250,000	4,000,000
Deferred timberland purchase obligations .....	63,217	199,568
Preferred stock (626,205 shares) .....	16,655,138	15,655,138
Common stock (\$1 par) .....	963,872	963,872
Capital surplus .....	2,809,109	2,809,108
Earned surplus .....	1,093,566	229,927
Total liabilities .....	\$29,684,062	\$28,152,019

Note: Company contingently liable for principal and interest on bonds of City of Port Angeles municipal water works Elwha River extension in amount of \$705,840, also \$48,000 4½% City of Hoquiam industrial water revenue bonds.

In addition to the statistics on the year's operations the Rayonier Incorporated report includes an illustrated article entitled "Rayon . . . The Modern Textile Material," in which the progress of rayon and staple fibre is outlined.

Photographs of the corporation's five plants, at Hoquiam, Shelton, Port Angeles and Tacoma, Washington, and the new pulp mill which will be completed at the end of the current year located at Fernandina, Florida.

The corporation's production of dissolving pulps, paper pulps and paper for the years from 1929 through 1939 is given together with the earnings for previous years of Rayonier Incorporated and its predecessor companies.

Another feature is the world produc-

tion of rayon yarn and staple fiber, and the world's synthetic viscose fiber production and equivalent dissolving pulp requirements.

The 20-page report is printed on Cumberland Gloss, an enamel book paper produced by the S. D. Warren Company of Cumberland Mills, Maine, from Olympic Standard, one of the high quality book grade paper pulps produced by Rayonier Incorporated. The cover has been laminated with Cellophane.

### Oregon Plans First Aid Contest

A conference was held in Portland August 14 to plan a state wide First Aid Contest program for the State of Oregon, to stimulate interest in safety education.

Subjects discussed at the meeting included the value of first-aid training in accident prevention, what facilities are available for teaching this training, and how to establish and maintain such a state program.

First-aid methods were demonstrated by four teams of housewives, farmers, utility employees, and the Mount Hood Ski Patrol.

This meeting is the outgrowth of observations of a committee which attended the first-aid contest held at Olympia July 29, and in which first and second places were won by the pulp and paper mill teams of Crown Willamette Paper Co., at Camas and Rayonier Incorporated.

Among those participating in the conference was M. L. Mammen, safety supervisor for the Crown Zellerbach Corp.

## Suit Filed Over Pacific Straw Stock

● Affairs of the Pacific Straw Paper & Board Co. of Longview, Washington, came into public view recently, when Joe O'Reilly of Tacoma filed suit for alleged violation of an agreement to sell 313,167 shares of stock at 10c per share. This is one of the first public disclosures of company affairs following the death of President Charles Schaub last March.

The suit claims that defendants Mrs. Ruth Marguerite Springer, executrix for the estate of Charles F. Schaub, and Mrs. Kathryn A. Sweet, administratrix of the estate of George Sweet, contracted to sell O'Reilly 192,198 shares of stock belonging to the Schaub estate, and 120,969 shares owned by the Sweet estate. These shares represent control of the corporation.

The suit charges that the defendants have failed to deliver the shares, stating that they are in a voting trust, of which Frak B. Mitchell, Portland attorney, is trustee. It is asked that the voting trust be declared terminated and the shares turned over to the heirs. It is understood that the option was given before Mr. Schaub's will was probated. The will has now been probated, it is reported, but the court has not yet given any decision as to whom are the legal heirs, at the time of writing.

It is said that Mr. O'Reilly is connected with the Standard Paper Box Co. of Tacoma, and that it is tied in with the Western Paper Box Co. of Oakland.

It is also claimed that 300,000 of the 313,167 shares were obtained by fraud, and that minority stockholder interests had demanded return of this stock to the company.

On Aug. 2, following filing of motions to dismiss, and demurrers to the complaints, a hearing was held in superior court before Judge Stone, but at the time of writing, his decision had not yet been handed down.

The Pacific Straw Paper & Board Co. is continuing to operate on a steady basis during this period. A reorganization plan is being worked on and progress is being made, but to date has not been completed. D. K. MacBain, resident engineer for the Weyerhaeuser Timber Co., Pulp Division, Longview, was recently named as one of the appraisers of the Charles F. Schaub estate.

## Rayonier Officials Visit Coast Mills

● Clyde B. Morgan, vice-president, and Stewart E. Seaman, director of sales, of Rayonier Incorporated with headquarters in the Chanin Building, New York City, were visiting the company's mills at Shelton, Hoquiam, and Port Angeles during the early part of August.

## Barber and Ostenson Visit Mills

● William R. Barber, director of research for the Crown Zellerbach Corp., returned to his office August 12 after a trip of a week to the company's plants in Southern California.

Mr. Barber and H. E. "Heinie" Ostenson were in the east together last month, being gone about two weeks. "Heinie" went to the fair in San Francisco, then met Bill in Wisconsin, where they visited a number of mills.

# Puget Sound Reports Deficit For First Six Months

Loss reported at \$14,821 as compared with deficit of \$53,997 for the first six months of 1938 — Working capital and current position improved.

**P**UGET SOUND PULP & TIMBER CO. and subsidiaries report consolidated net loss of \$14,821 after all charges, including depreciation, depletion and taxes, for the six months ended June 30, 1939. This compares with consolidated net loss of \$53,997 for the corresponding period of 1938 after depreciation and obsolescence.

For the three months ended March 31, last, the company reported consolidated net profit of \$12,615 after all charges, equal to approximately 10 cents a share on 123,637 shares of 6 per cent cumulative convertible \$20 par value preferred stock outstanding.

During the six months ended June 30, last, working capital and current position was improved. Current assets as of June 30, 1939, amounted to \$543,988, including cash of \$49,062, compared with current liabilities of \$392,311, a ratio of 1.38 to 1, leaving working capital of \$151,677. This compares with current assets of \$537,798 on December 31, 1938, including \$200,944 cash, against total current liabilities of \$459,733, a ratio of 1.17 to 1, leaving working capital of \$78,065.

As of July 1, dividend accumulated on the 123,637 shares of 6 per cent convertible cumulative preferred stock amounted to 60 cents a share, or a total of \$74,182. In this connection it was stated that if a rise of approximately \$2.50 per ton in the price of pulp occurred, dividend payments on the preferred could be resumed. The sales price last June was \$27.12 per ton, against \$27.21 in May. Cost of manufacturing amounted to \$25.24 last month, compared with \$25.22 the preceding month.

Inventories of pulp at cost, logs at lower of cost or market, and raw materials and supplies at cost stood at \$229,416 on June 30, last, compared with \$245,346 on December 31, 1938, and \$316,593 on June 30 of last year.

Consolidated income account of Puget Sound Pulp & Timber Co. for the six months ended June 30, 1939, compares as follows:

	1939	1938
Net sales and railway operating revenue.....	\$1,203,777	\$531,670
Cost of sales.....	1,017,289	388,166
Gross profit .....	\$186,488	\$143,504
Other income .....	13,174	5,423
Gross revenue .....	\$199,662	\$148,927
Shipping expense .....	8,861	15,833
Selling expense .....	48,138	10,842
Shutdown expense .....	35,886	98,302
Interest .....	4,604	2,808
Profit before depreciation and obsolescence .....	\$102,353	\$21,142
Depreciation and obsolescence .....	117,174	75,139
Net loss .....	\$14,821	\$53,997

## Carl Fahlstrom Named Assistant Resident Manager

● Carl Fahlstrom, formerly technical superintendent for the Longview Fibre Co., has been named assistant resident manager of the big Longview mill.

## Longview Fibre Starts New Digester

● A new 8-ton kraft digester, made by the Blaw-Knox Co., went into operation at the Longview Fibre Co. on August 7. This unit has a 1 1/4-in. shell, exceptionally heavy for this type of service. While it is an additional digester and is capable of increasing capacity, its primary purpose is for flexibility as to grades manufactured.

The Longview Fibre Company has just completed construction of a new warehouse. It is 400 ft. long and 80 ft. wide, designed for the storage of paper, towels and bags, and for towel converting purposes. Equipment is now being moved from its previous location to the new building, where it is being put into service.

## Crown Zellerbach Research Laboratory Well Under Way

● The new research laboratory of the Crown Zellerbach Corp. at Camas, Washington, is well under way and construction is progressing rapidly. It will be finished some time this fall.

The new warehouse for bags and bag rolls is rapidly nearing completion and will be ready for use about September 1.

## Myron Black Recovering From Appendectomy

● Myron Black of the Inland Empire Paper Co., Millwood, Washington, is recovering from an operation for appendicitis, which took place about the first of August.



# Crown Zellerbach Profit Below Previous Year

**Net profit for fiscal year ending April 30, 1939, was \$5,015,390 compared with \$6,211,414 in the fiscal year ending April 30, 1938—Additions to plants cost \$1,912,000 \$2,200,000 was spent for maintenance and repairs—All Crown Willamette Paper Company bonds retired.**

THE Annual report of the Crown Zellerbach Corporation and its subsidiaries for the fiscal year ending April 30, 1939, was issued July 17th in the form of an attractively lithographed 32-page booklet.

A section of the report deals with "Quality Control of Paper". The question is asked, "What is quality in paper?" The answer, quoting from the report, "Simply a particular attribute paper is made to possess in the course of its manufacture and preparation for market which makes the customer come back for more. It must serve the current demand for specific uses, and it must be equal to, and preferably a little better than the competitor's paper for the same use. It is significant that quality control stands today as a zealously guarded function of all Crown Zellerbach plants."

The place of research in a modern pulp and paper producing organization is also defined in the section headed "Quality Control of Paper." Quoting, "While stress has been laid upon the necessity for quality control through manufacturing stages, the research function of the paper industry must be credited with being the forerunner of the quality control function. One leans upon the other."

The article ends with this statement, "With faith in the future, and a determination to maintain its position in Quality Control of paper products, Crown Zellerbach Corporation is expanding research and technical control facilities by construction of a new research laboratory and central technical department at Camas, Washington, for service to its plant laboratories and paper mills."

"Research—to inquire into new uses for paper so that Crown Zellerbach Corporation may create new services, new employment, new business."

"Quality Control—so that paper from its plants will always be of a high order, capable of meeting strictest specifications."

"Purity—so that paper in its many uses may guard health at all times from unsanitary conditions."

"Paper—as strong and straight and dependable as the western woods from whence its fibers come."

The independently audited annual report for the fiscal year ended last April 30, Crown Zellerbach Corp. and subsidiaries shows consolidated net profit of \$5,015,390 after all charges, including depreciation, depletion, interest, income taxes and minority stockholders' interest. This is equivalent, after dividend requirements on 529,665 shares of \$5 cumulative convertible preferred shares outstanding, to \$1.04 a share on 2,261,199

shares of common. In the preceding fiscal year, the company reported consolidated net profit of \$6,211,414 after depreciation, depletion, interest, income taxes, surtax on undistributed profits, and minority interest, equal to \$1.57 a share on the same number of common shares after regular preferred dividends.

In a joint statement to stockholders, Louis Bloch, chairman of the board, and J. D. Zellerbach, president, said:

"Although the effect of the last national business recession, which was keenly felt during the last half of the fiscal year ended April 30, 1938, carried over into the past year, the first quarter saw the start of recovery. Production of paper products by your domestic mills gradually increased to slightly less than normal capacity during the latter half of the year. Reduced demand and depressed prices in foreign markets, particularly China and Japan, contributed substantially to the curtailment in production of Pacific Mills, Ltd., a Canadian subsidiary, to a point considerably below that of the preceding year. The total production for all plants approximated 93% of the total for the preceding year."

Sales in the fiscal year ended April 30, 1939, totaled \$48,339,601, as compared with \$49,891,332 in the preceding year. The total includes sales of purchased merchandise by jobbing units as well as sales of the company's own manufactured goods, but does not include transactions affecting transfer of merchandise between the company's various divisions.

## Products Diversified

● Trend toward a greater diversification of Crown Zellerbach's products, and a lessening emphasis on the production of newsprint was apparent in the latest report. Newsprint production amounted to 225,551 tons in the preceding period. In the year ended April 30, 1939, newsprint production was 45.49% of the total, as compared with 50.14% in the

preceding year. At the same time, production of coarse papers and tissues amounted to 229,074 tons last year, or 46.31% of the total, compared with 216,822 tons in the preceding year, or 40.80% of the total. The trend of manufacturing activities is shown in the following table.

Tonnage of products manufactured by Crown Zellerbach during the year ended April 30, 1939, compares as follows:

As of April 30, 1939, current assets totaled \$23,012,957 and current liabilities \$7,242,616, a ratio of 3.17 to 1. A year earlier current assets were \$23,317,664 and current liabilities \$8,939,334, a ratio of 2.6 to 1. Consolidated working capital amounted to \$15,770,341, an increase of \$1,392,010 over a year earlier. Inventories totaled \$11,807,662 on April 30, last, as against \$12,777,932.

Dividends paid during the year were the regular \$5 a share on the preferred and 50 cents on the common, totaling \$2,644,461, and \$1,130,528, respectively. Total dividends of \$3,774,989 represented 75% of the consolidated net profit for the year. In the previous year, per share common dividends were 75 cents in addition to \$5 on preferred.

During the year, Crown Zellerbach accomplished the redemption of all outstanding bonds of Crown Willamette Paper Co. The \$9,927,500 of these bonds were redeemed on January 1, last, at 103. Payment was made principally from the proceeds of bank loans aggregating \$10,000,000 bearing interest at the rate 3½% and maturing in varying amounts from 1943 to 1949. Premium and expenses incident to the redemption of the bonds in the amount of \$196,065 were charged against earned surplus.

## Mill Improvements

● No major additions to plant facilities were made during the year, according to Mr. Bloch and Mr. Zellerbach, although expenditures of approximately \$1,912,000 were made. Although this

	—1939—		—1938—	
	Tons	Pct. of total	Tons	Pct. of total
News and other print papers.....	225,551	45.59	266,433	50.14
Coarse papers and tissues .....	229,074	46.31	216,822	40.80
Board .....	30,117	6.09	38,385	7.22
Machine dried pulp.....	9,962	2.01	9,767	1.84

Net profits of the company and its subsidiaries, by quarters, during the last three fiscal years ended April 30 compares as follows:			
	1939	1938	1937
First quarter .....	\$970,055	\$2,507,711	\$1,290,304
Second quarter .....	1,368,553	1,933,090	1,544,111
Third quarter .....	1,145,775	806,064	747,590
Fourth quarter .....	1,531,007	964,549	1,512,398
Net profit for year .....	\$5,015,390	\$6,211,414	\$5,094,403



total is said to be less than annual expenditures in recent years, the corporation stated that it has not departed from its policy of keeping abreast of progress in the industry. To improve operations, it replaced machinery, having an original value of \$628,000, with modern equipment. Other properties having a total value of \$244,000 were disposed of during the year. The resultant loss on these transactions charged to profit and loss for the year was \$58,000. Expenditures for maintenance and repairs

amounted to \$2,200,000 and were included in operating expenses. Taxes and expense of maintaining timberlands were charged to expense in the amount of \$143,000. Depletion for the year was computed at rates previously established in conformity with taxation requirements and amounted to \$3,232,000.

Relations between Crown Zellerbach management and employes, in all activities, are described as continuing on a basis which has produced results characterized as generally satisfactory and

harmonious. Agreement between the International Brotherhood of Paper Makers and International Brotherhood of Pulp, Sulphite, and Paper Mill Workers has been extended to May 31, 1940. This is the third consecutive year the agreement has been extended without change. The wage scale is continued at the same level as in the 1937 agreement.

Consolidated income account of Crown Zellerbach Corp. and subsidiaries for the fiscal year ended April 30, 1939, compares as follows:

	1939	1938	1937
Sales .....	\$48,339,601	\$49,891,332	\$48,675,203
Cost of goods sold .....	32,628,317	32,901,950	32,744,954
Profit on sales .....	\$15,711,284	\$16,989,382	\$15,930,248
Other operating income .....	772,994	898,228	1,138,726
Gross operating income .....	\$16,484,278	\$17,887,610	\$17,068,974
Operating expenses .....	6,078,386	6,032,349	6,559,068
Operating profit .....	\$10,405,892	\$11,855,261	\$10,509,906
*Other income (net) .....	432,620	467,034	712,623
Total income before pr charges .....	\$10,838,512	\$12,322,295	\$11,222,529
Depreciation .....	3,232,391	3,237,686	3,144,015
Depletion .....	440,010	637,436	604,261
Interest .....	803,412	897,015	1,042,695
Minority interest in subsidiaries' inc. ....	42,739	61,999	48,685
**Incorporation tax (U. S. and Canada) ..	1,304,570	1,179,978	947,235
Surtax on undistributed profits .....	96,767	96,767	341,235
Net profit .....	\$5,015,390	\$6,211,414	\$5,094,403

\*Includes dividends from Fibreboard Products in 1939, which were on preferred stock only, and exceeded the pro rata of consolidated earnings for the year by \$30,912. In 1938, dividends received from Fibreboard amounted to \$656,640, which was \$81,000 less than Crown's equity in Fibreboard's net profit. In preceding years Crown Zellerbach reported equity in Fibreboard's earnings amounting to \$997,146 in the 1937 fiscal year. \*\*Includes additional provision of \$148,748 for prior years.

### Balance Sheet

Zellerbach Corp. and subsidiaries, as of April 30, 1939, compares as follows:

	1939	1938	1937
<b>ASSETS</b>			
Cash .....	\$3,748,158	\$3,297,059	\$3,221,873
Marketable securities .....			489,000
Notes and accounts receivable .....	7,339,904	7,125,441	7,081,289
Dividend receivable .....	117,232	117,232	117,232
Inventory:			
Finished products .....	7,065,379	7,184,030	6,914,268
Goods in process .....	590,133	674,522	459,212
Materials and supplies .....	4,152,151	4,919,380	4,539,772
Total current assets .....	\$23,012,957	\$23,317,664	\$22,822,647
Investment in Fibreboard .....	5,186,131	5,186,131	5,774,374
Other investments at cost or less .....	1,308,207	1,557,461	1,032,881
Miscellaneous receivables—non-current ..	148,615	313,480	281,046
Land, timber, etc. (net) .....	23,514,610	23,732,348	24,144,225
Buildings, machinery, equipment (net) ..	40,693,439	42,189,390	42,237,670
Intangibles, less amortization .....	7,566,323	7,647,017	7,714,209
Deferred items .....	740,386	606,680	592,756
Total assets .....	\$102,170,668	\$104,550,172	\$104,599,807

	1939	1938	1937
<b>LIABILITIES</b>			
Accounts payable .....	\$2,491,563	\$2,453,428	\$4,335,231
Accrued pay roll and interest .....	833,559	871,915	812,577
Due to officers of company .....		132,091	109,645
Taxes accrued .....	1,957,730	1,943,314	2,069,256
Notes and debts payable .....	1,959,764	3,538,586	2,291,649
Total current liabilities .....	\$7,242,616	\$8,939,334	\$9,618,358
Notes and contracts payable .....	16,894,779	8,705,544	9,350,000
First mortgage 6% bonds .....		9,927,500	9,927,500
Subsidiary's stock publicly held .....	1,212,206	1,201,088	1,212,195
Preferred stock (\$100 a share) .....	52,965,500	52,965,475	52,965,475
Common stock (\$5 a share) .....	11,305,995	11,305,995	11,305,995
Capital surplus .....	9,129,581	9,129,581	*9,717,823
Earned surplus .....	3,419,991	2,375,656	*502,462
Total liabilities .....	\$102,170,668	\$104,550,172	\$104,599,807

\*Upon consummation of merger of Crown Willamette Paper Co. and Crown Zellerbach Corp. of March 25, 1937, the new company had a surplus of \$5,125,881. To this surplus was added \$4,591,941 of the 1937 fiscal year's net profit, which totaled \$5,094,403 and the balance of that year's profit, or \$502,462 was labeled earned surplus since date of merger.

## Spaulding to Run During August

● After being shut down during July, the Spaulding Pulp and Paper Co. started up the pulp mill at Newberg, Ore. on August 1. The plant will run five days per week through the entire month. Plans for September are not yet known.

The company is still working on a plan of reorganization but it has not yet reached the stage where details can be announced.

## Oregon Working On Stream Pollution

● C. M. Everts, graduate of Harvard University, has been named assistant engineer for the State Sanitary Authority, assisting engineer Carl Green. He is beginning his work in the Willamette Valley.

Due to the fact that only a small appropriation was made by the last legislature, he will be the only member of the staff to be added until the legislature convenes again. His primary work will be on stream pollution of the Willamette river and tributaries.

## Bill Marshall on Trip

● William C. Marshall, who handles Heller & Merz dye stuffs for the Pacific Coast Supply Co., left Portland about the first of August for a trip of several weeks through the California territory.

## Coster Practicing Up on His Golf

● N. W. Coster, technical director of the Soundview Pulp Company and chairman of the Pacific Section of TAPPI during the year, is spending the last two weeks of August at Birch Bay near Bellingham.

His vacation will be devoted largely to playing golf. It is rumored that Mr. Coster is aiming at winning the golf tournament which will be held in connection with the Fall meeting of the national TAPPI organization in Seattle a year from now, and he is starting in early to whittle down his score.

## Dave Jordan On The Coast

● Dave Jordan of F. C. Huyck & Sons, felt manufacturers of Albany, New York, on one of his regular visits to the Coast spent several weeks during August calling on the mills.

F. C. Huyck & Sons are represented on the Pacific Coast by the Pacific Coast Supply Company with offices in Portland, San Francisco and Seattle.

# Studies on Waste Sulfite Liquor

## II.—Destructive Distillation of Waste Sulfite Liquor

by ROBERT J. LOVIN and LEO FRIEDMAN\*

SOME years ago experiments were carried out by Phillips and co-workers on destructive distillation of alkali lignin in a reduced atmosphere of carbon dioxide (4) and of the residue of waste sulfite liquor under similar conditions (3).

Through the courtesy of the research division of the Weyerhaeuser Timber Company, and more specifically that of Mr. R. S. Hatch, research director, there became available a countercurrent multiple cell dialyzer which has been used in the laboratory for separation of waste sulfite liquor into a lignin and a sugar fraction.

With these fractions available it seemed desirable to compare the products of destructive distillation of waste sulfite liquor with those of the lignin fraction of waste sulfite liquor. Accordingly, experiments have been carried out following as nearly as possible the procedure outlined by Phillips (3) using an apparatus similar to that employed by Phillips and Goss (4).

### Experimental

**Preparation of Material**—Five different materials were subjected to destructive distillation. In the tables of data the sample called Ca W. S. L. I was a sample of waste sulfite liquor supplied by the Weyerhaeuser Timber Company of Longview, Washington; the sample called Ca W. S. L. II was a waste liquor obtained from Rayonier Incorporated, Shelton, Washington; the sample

called Ca Lig. was the lignin fraction obtained by dialysis of the Ca W. S. L. I; the sample called Mg W. S. L. was a sample of waste liquor obtained from an experimental cook and supplied by the Weyerhaeuser Timber Company; the sample called Mg Lig. was the lignin fraction obtained by dialysis of Mg W. S. L.

The dialysis was carried out on neutralized waste liquor samples. The Ca W. S. L. I was neutralized by adding 25 g. of soda ash per liter of waste liquor and boiling to expel the sulfur dioxide. The Mg W. S. L. was neutralized by adding magnesium hydroxide and boiling until pH reached 8. Both solutions were filtered before dialyzing.

Each of the above products was evaporated to dryness in a vacuum evaporator, dried at 105 deg. C. in an oven, and ground to a powder. The dry materials analyzed as follows:

**Table I**  
Analysis of Materials Subjected to Distillation

	% Ash	% S
Ca W. S. L. I	7.0	5.8
Ca W. S. L. II	15.6	5.3
Ca Lignin	13.5	5.3
Mg W. S. L.	10.7	6.6
Mg Lignin	10.4	6.8

**Determination of Ash**—Ash was determined by heating a portion of the solid residues to constant weight in a muffle furnace at 800-900 deg. C.

**Determination of Sulfur**—Sulfur was determined by the procedure outlined in Mahin (2) for the determination of sulfur in fuels.

**Destructive Distillation**—An apparatus similar to that described by Phillips and Goss (4) was used for these experiments. For each experiment 300 g. of dry residue were placed in the distilling vessel. The air in the apparatus was first replaced by carbon dioxide, and then evacuated to about 150 mm. pressure. A small stream of carbon dioxide was passed through the apparatus during the experiment. The temperature was gradually increased to a maximum of about 400 deg. C. at the end of 4 hours. The gases given off definitely showed the presence of hydrogen sulfide and mercaptans. The distillate collected consisted of a dirty aqueous liquid and practically no oil. In each experiment the weight of the distillate and of the carbonized residue in the retort were determined. No attempt was made to collect the gases produced, the weights of which were obtained by difference. The results of analysis of the products of distillation are given in the following tables:

### Analysis of the Distillate

**Determination of Acetic Acid**—Ten ml. of the distillate were acidified with sulfuric acid and potassium permanganate was added to oxidize sulfur dioxide. The mixture was then steam distilled until the distillate coming over no longer reacted acid to litmus. This distillate was titrated with 0.1 N sodium hydroxide. All of the acid present was calculated as acetic acid.

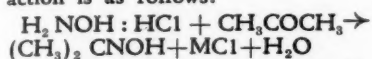
**Determination of Acetone**—Two ml. of the distillate were diluted with 10 ml. of water and neutralized with 0.1 N sodium hydroxide.

**Table II**  
Products of Dry Distillation

Material Distilled	Average Pressure During Distilla- tion	Maxi- mum Temp. of Distilla- tion	Carbonized Residue		Total Distillate			Gaseous Products		
			Wt. Grams	Yield %	Wt. Grams	Yield %	Yield on S and Ash Free Basis %	Wt. Grams	Yield %	Yield on Ash Free Basis %
Ca W.S.L. I	120 mm.	437° C.	174.1	58.0	81.1	27.0	31.0	44.8	14.9	16.0
Ca W.S.L. II	160 mm.	410° C.	185.3	61.8	64.4	21.5	27.2	50.3	16.8	19.9
Ca Lignin	300 mm.	380° C.	169.8	56.6	93.5	31.2	38.4	36.7	12.2	14.1
Mg W.S.L.	140 mm.	375° C.	167.1	55.7	80.6	26.9	32.5	52.3	17.4	19.5
Mg Lignin	150 mm.	412° C.	172.7	57.6	83.7	27.9	33.7	43.6	14.5	16.2

\*Department of Chemistry, Oregon State College, Corvallis, Oregon. Published with the approval of the Monographs Publication Committee, Oregon State College, as Research Paper No. 22, School of Science, Department of Chemistry. The first research paper in this series was published in the July, 1939, number.

0.5 g. of hydroxylamine hydrochloride was dissolved in water, neutralized with the same base, and the solution added to the sample of distillate. After 30 minutes the liberated hydrochloric acid was titrated with 0.1 N sodium hydroxide using methyl orange indicator. The reaction is as follows:



Any other ketones or aldehydes present would react similarly to liberate HCl, but in this work it was assumed that only acetone was present.

#### Determination of Methanol—The

methoxyl content of 1 ml. sample of the distillate was determined by a modified Zeisel method (1). It was assumed that methanol accounted for all of the methoxyl present.

#### Discussion

● The slightly higher yields obtained from the dialyzed waste liquors were to be expected if the acetic acid, acetone, and methanol come from the lignin present, since much of the carbohydrate material present in the waste liquor had been removed by the dialysis. A comparison of the products and yields obtained in this work with those

obtained in the destructive distillation of wood indicate, as might be expected, that the methanol, acetone, and acetic acid obtained from wood come from the lignin present.

Of course it was realized that destructive distillation under the conditions used in this work would probably offer no solution to the waste sulfite liquor disposal problem. It was, however, undertaken as the first step in a series of similar experiments in which it is planned to carry out distillations at higher pressures and in the presence of other gases.

Table III  
Analysis of the Aqueous Distillate

Material Distilled	Acetic Acid					Acetone Yield				Methanol Yield			
	Wt. of Distillate Grams	Wt. Grams	% of Distillate	% of Orig. Material	% on Ash and S Free Basis	Wt. Grams	% of Distillate	% of Orig. Material	% on Ash and S Free Basis	Wt. Grams	% of Distillate	% of Orig. Material	% on Ash and S Free Basis
Ca W.S.L. I	81.1	1.26	1.56	0.42	0.48	0.85	1.05	0.28	0.32	0.89	1.10	0.30	0.34
Ca W.S.L. II	64.4	1.97	3.06	0.66	0.83	0.51	0.79	0.17	0.21	0.88	1.37	0.29	0.37
Ca Lignin	93.5	2.86	3.06	0.95	1.17	1.37	1.47	0.46	0.57	0.87	0.93	0.29	0.36
Mg W.S.L.	80.6	1.32	1.64	0.44	0.53	0.71	0.88	0.24	0.29	0.87	1.08	0.29	0.35
Mg Lignin	83.7	2.30	2.75	0.77	0.93	0.95	1.13	0.32	0.39	0.89	1.06	0.30	0.36

#### Finnish Student Visiting on Scholarship

● S. J. Storgards, graduate in chemistry from the Technical High School of Finland (college of engineering), is visiting pulp and paper mills on the Pacific Coast during August.

Mr. Storgards came to the United States in February on the Ahlstrom Scholarship. The scholarship is awarded annually by A. Ahlstrom Osakeyhtio, manufacturers of sulphite pulp, groundwood pulp and paper with mills at Warkaus and Kauttua in Finland. The award is made to a technical graduate who has had at least two years experience in pulp and paper mills subsequent to his graduation.

Mr. Storgards upon finishing school went to work for A. B. Kemi, O. Y., and spent two and a half years in the sulphite and sulphate pulp mills of that company before receiving the Ahlstrom Scholarship for 1939 which provides for traveling in the United States for the purpose of studying American methods and equipment employed in the manufacture of pulp and paper.

Upon arriving in this country in February, Mr. Storgards went directly into the South where he visited mills at Port St. Joe, Panama City, Jacksonville, Fernandina, Brunswick, Savannah, Charleston, Georgetown, Tuscaloosa, Crossett, Hodge and Houston. Driving to the Pacific Coast around the middle of July, Mr. Storgards expected to visit mills at West Linn, Camas, Everett, Longview,

Port Angeles, Port Townsend and Tacoma.

From the Coast he will go into the Middle West and on to New York, sailing for Finland sometime in October.

#### Scheuermann On Coast Telling of New Cameron Developments

● Joseph Scheuermann of the Cameron Machine Company of Brooklyn, New York, is now on the Pacific Coast visiting Cameron customers and prospective customers.

Mr. Scheuermann expects to remain on the Coast for sometime as he is describing Camachine's latest developments, the Constant Web Tension Control and the Electric Eye Side Register Control, in addition to making his regular calls in the interests of the company's well known splitting and roll winding equipment for paper and board mills.

The new Camachine developments have aroused much interest on the part of the mills and converting plants. Mr. Scheuermann is explaining how these devices are applied to winders in connection with paper and board machines, to slitters in paper mill finishing rooms and converting plants, and also on presses and other equipment operating directly from the roll.

The Cameron Machine Company is represented on the Pacific Coast by the Pacific Coast Supply Company of Portland, San Francisco and Seattle.

#### Fibreboard at Vernon Expanding Set-Up Box Department

● Fibreboard Products, Inc., Vernon plant, is extending the building in which the set-up department is located to add approximately 5,000 square feet of floor space and with equipment added to increase the production of the department two-thirds. Another development at the plant is the increasing of the stock warehouse, an addition to the building of approximately 100 by 130 feet. This latter development was delayed by the recent lumber strike in Los Angeles and at the Los Angeles Harbor which tied up all lumber shipments. It is expected to have the new addition completed by the end of August.

#### Everett Buys Two Cameron Winders

● The Everett Pulp and Paper Co. has purchased two Camachine No. 14 winders to be installed on No. 1 and No. 2 paper machines at the mill in Everett. One is a 98-inch unit and the other is an 83-inch machine.

One of these was installed over the Fourth of July, and the other will be put in over Labor Day.

The Inland Empire Paper Co. of Millwood, Wn., also recently purchased a Camachine No. 14 winder for their 83-inch paper machine. These winders are made by the Cameron Machine Co. of Brooklyn, N. Y., and are sold in the West by Pacific Coast Supply Co.



# The Production of Sulphur Dioxide Gas By Flash Roasting

by HAROLD O. GODDARD\*

**E**CONOMY in the production of sulphur dioxide,  $\text{SO}_2$ , gas is a factor that should be considered by all its users, whether it is for the purpose of making sulphite acid for the pulp mills, sulphuric acid for the acid plant, liquid sulphur dioxide, or any other special purpose.

In general, the problem resolves itself into a choice of three commercially possible methods — the roasting of sulphide concentrates, burning of brimstone, or the utilization of waste gases.

Waste gas, a problem of the smelting industry, is usually an unwanted and troublesome by-product of the desulphurization of mine ores. Furthermore, waste gas is rarely, if ever, directly available to the sulphite pulp mill because of the obvious impossibility of transporting it and, for this purpose, must be converted to elemental sulphur.

Consequently, the sulphite pulp industry is restricted in its choice to two practical methods of producing sulphur dioxide gas: the roasting of sulphide concentrates and the burning of pure sulphur or brimstone. The former method and its economics should be of especial interest to the pulp industry because of the large quantities of high grade iron pyrites concentrates available in the proximity to the mills.

## Flash Roasting

● Before proceeding further, it is undoubtedly advisable to give a brief description of what takes place in flash roasting.

Flash roasting is the term applied to the method of roasting in air suspension any material which has constituents that will burn with the production of sufficient heat to make combustion self-supporting. In so doing, each individual particle flashes brightly for an instant; hence, the term "flash roasting."

For any given weight of material, the finer the particles, the greater

the surface exposed, and the more rapid and complete the combustion. However, the particle best suited to flash roasting is one of such size that rapid and complete combustion is obtained with the minimum of dusting. This particle should fall slowly through an uprising current of gas, or, conversely, should not float away with the gas being removed from the combustion zone.

In the Nichols Freeman flash roaster, the concentrates are introduced in a uniform spray into the center of the top of a cylindrical combustion chamber. Herein, they flash into incandescence, forming a long, conical flame so proportioned that no part impinges against the walls or bottom of the chamber. The gas escapes through a tangential outlet at the top, while the solids drop to the bottom. The space formed by the roof arch, the cylindrical wall and above the angle of the conical flame is used to collect the gas prior to its escape through the tangential outlet. This design materially reduces the dust carried away with the gas, as all particles are projected below the gas outlet and must float upwards to it in a very slowly rising column of gas.

To obtain high sulphur dioxide,  $\text{SO}_2$ , gas strength, a recirculating system is used whereby a portion of the gas cooled by the waste heat boiler and of the same strength as that originally withdrawn from the combustion chamber is returned to the combustion chamber. This allows the chamber temperature to be held constant at the optimum point while the gas strength is varied.

Gas strength may be increased without recirculation until an optimum temperature of 1000 deg. C. is reached. On further increasing the gas strength, a proportionate quantity of recirculated cooled gas is necessary to maintain the chamber temperature at 1000 deg. C. The higher the gas strength, therefore, the larger the quantity of cooled gas it is necessary to recirculate.

An additional purpose is served by the recirculated cooled gas in that it enters the combustion chamber through the burner providing larger gas volumes for better distribution of the conical spray.

## Gas Strength

● For the manufacture of sulphuric acid, a gas strength of 12 per cent  $\text{SO}_2$  permits the use of the equipment following the flash roaster of smaller size and lower initial cost. Another advantage is that the troubles usually encountered with air infiltration caused by the necessarily high suction are minimized and maximum conversion efficiency maintained. Again the high optimum roasting temperature does not permit the formation of sulphur trioxide,  $\text{SO}_3$ , in the combustion chambers, while the rapid cooling of the gases in the waste heat boiler or by other means following the combustion chamber prevents its formation in that temperature range at which the reaction is most active.

For the making of sulphite acid in the sulphite pulp mills, a high gas strength is entirely desirable. Where pyrites flotation concentrates containing approximately 50 per cent equivalent sulphur are flash roasted, the gas strength can normally be held to 12 per cent  $\text{SO}_2$ . With this strength of gas, a raw acid of any normal strength required by the sulphite mill can readily be produced. However, should this strength not be considered adequate for the production of high strength sulphite acid, a system is now available whereby it can be stepped up to the gas concentration desired. This extra strong gas concentration is produced by utilization of the heat usually recovered in the form of steam or available heat from the scrubbing towers.

## Calcine

● The calcine produced from flash roasting pyrites concentrates is in the form of minute hollow spherical-shaped shells containing upwards of 60 per cent iron dependent on the purity of the original concentrates. The iron in each particle is in the form of iron oxide, normally in almost equal parts of hematite,  $\text{Fe}_2\text{O}_3$ , and magnetite,  $\text{Fe}_3\text{O}_4$ . The proportions of hematite and magnetite may be altered by regulation of combustion chamber temperature and gas strength. When dead roasting, the sulphur content is reduced

\*Nichols Engineering & Research Corporation, New York City. Presented at the Dinner Meeting held by the Pacific Section of TAPPI in Vancouver, B. C., on May 6th, 1939. Mr. Goddard's paper was read by A. H. Lundberg of Seattle, representing the Nichols Engineering & Research Corporation in the Pacific Northwest.

to less than 1 per cent and may be as low as .1 per cent.

A very desirable result is the partial desulphurization of mine ores which may be obtained by control of gas strength and combustion chamber temperature.

### Steam

● Directly connected to the combustion chamber gas outlet is usually a waste heat boiler, of the down draft type, specially designed so that only cast iron surfaces are exposed to the  $\text{SO}_2$  gas. This is accomplished by encasing a series of horizontal steel tubes in smooth cast iron rings, using cast iron tube sheets and covering the return bends with cast iron. These cast iron surfaces present a heating surface that is greater than bare steel tubes and offer almost perfect resistance to corrosion.

The accumulations of dust particles on the boiler tubes and in the gas duct between the combustion chamber and boiler are removed easily by compressed air. This is done once every eight hours either by movable or stationary compressed air lances. The dust falls into a hopper which forms the base of the boiler and is removed through an air lock. Because of the high heat transfer rate of iron oxide, a light coating left on the surface of the

tubes does not interfere with the steam recovery.

The boiler serves a further, and important, purpose of rapidly reducing the sulphur dioxide,  $\text{SO}_2$ , gas temperature from 1000 deg. C. to 350 deg. C., in which range the formation of sulphur trioxide,  $\text{SO}_3$ , is most active. As the sulphur dioxide,  $\text{SO}_2$  gas is formed above 1000 deg. C., and is so rapidly cooled, it is almost entirely free from sulphur trioxide,  $\text{SO}_3$ .

When flash roasting pyrites concentrates, approximately 3.5 pounds of steam from and at 212 deg. F. are produced per pound of equivalent sulphur, or 7850 pounds per long ton of equivalent sulphur. It is quite feasible to produce this steam at any desirable pressure and with or without superheat.

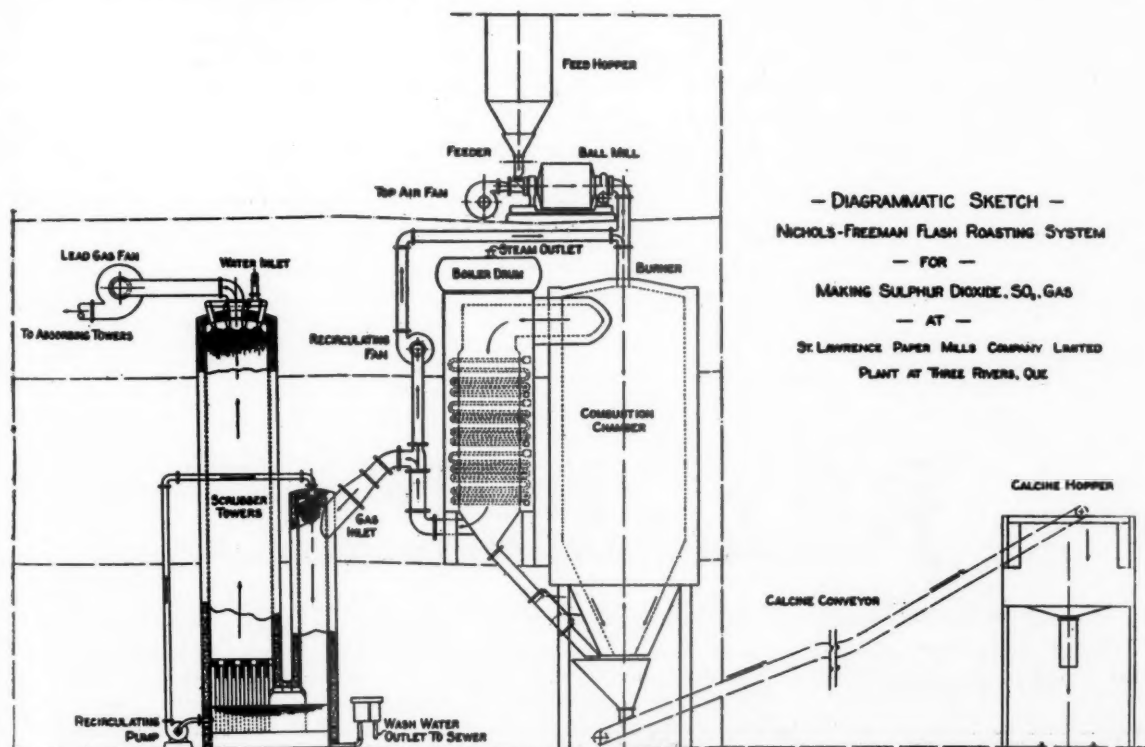
In the making of sulphite pulp, large quantities of steam are used in the digestors so that an easy outlet for the steam produced by the waste heat boiler is close at hand.

In the manufacture of sulphuric acid, the steam produced can be converted to electric power by use of a turbo-generator. This is of particular interest as a large proportion of the sulphuric acid plants are located in regions where electric power is expensive.

### Gas Cleaning

● Where the flash roaster is used for making sulphite acid, a two-pass scrubbing tower system is used. This system consists of two towers, one small and one large, constructed of reinforced concrete and lined with acid-resisting tile. The large tower is packed with stoneware packing rings. Both towers are provided with a spray system, and connected at the bottom by a gas passage and a common sump. The gas enters the small tower passing through the large tower to the suction fan. Fresh cold water is sprayed into the top of the large tower. The water from the common sump is pumped either to the small tower or to both towers, dependent upon the desire to operate either as a hot water scrubber or as a cold water scrubber. In the cold water scrubber, the water from the common sump is pumped, cooled and cleaned before spraying into both the small and large towers. The gas is initially cleaned in the small tower and the temperature reduced from the dry-bulb to the wet-bulb temperature. The large tower completes the cooling and cleaning.

The cleaning of the gas for sulphuric acid is performed by means of cyclone dust collectors, or electrostatic precipitators, or a combination of the two, dependent on the cleanliness of the acid required.



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### Flexibility

● The great flexibility of this flash roasting system, as compared with other conventional methods of roasting and of sulphur burning, is of major importance in the production of sulphur dioxide.

The quantity of material being roasted in the flash roasting combustion chamber at any time, as compared with other sulphur dioxide producing equipment of the same daily capacity, is so small that extremely rapid changes can be made in rate of feed, gas strength, etc. In fact, these changes can be made from minimum to maximum conditions, and vice versa, almost as quickly as the operator can change the controls. In starting the furnace, the concentrates may be fed as soon as the combustion chamber is brought to the ignition temperature by oil burners or other means. Steady conditions are obtained as soon as the brickwork is sufficiently heated to allow the chamber temperature to reach 1000 deg. C.

The material is carefully prepared prior to roasting. The feeding system has been designed with great care so that the absolute uniformity of feed is obtained with a much steadier and more uniform gas strength than is possible with other methods of roasting.

In shutting down the flash roaster, only a few minutes are required to eliminate the gas after the feed is discontinued. The unit may then be totally closed until such time as it is desired to continue operation. Rather striking evidence of the flexibility of the flash roasting system is exemplified by the operation of the plant at the St. Lawrence Paper Mills Company, Limited, Three Rivers, Quebec. Because of special circumstances of acid requirements, it is found desirable to operate two or three, six hour shifts per day, about four days per week. This necessitated one to two shut downs per day in addition to the week-end shut down. During this operation, the flash roaster ran well without noticeable loss in efficiency. This service is the most severe that any roasting equipment is called upon to withstand.

### Present Installations

● It is worthy of note that sixteen Nichols Freeman flash roasting equipment units are at present operating at plants of:—

St. Lawrence Paper Mills Co., Three Rivers, Quebec.

Vinegar Hill Zinc Co., Cuba City, Wisconsin.

Commonwealth Fertilizers & Chemicals, Ltd., Melbourne, Australia.

Australian Fertilizers, Ltd., Sydney, Australia, while a design is at present in progress for a European installation.

Kuhlman's of Paris, large manufacturers of sulphuric acid, have recently acquired the rights to the Nichols Freeman flash roaster for sulphuric acid making in France and Belgium.

The General Chemical Company just lately acquired the patent rights in the United States and Canada for employing the Nichols Freeman flash roaster in the manufacturing of sulphuric acid.

The rights for employing the flash roaster in making acid for the sulphite pulp mills have been retained by the Nichols Engineering & Research Corporation.

### Maintenance

● In the design of the flash roaster, the process has been so arranged that no special high cost materials are required in the unit. Because of this, as well as the simplicity of the system, its rugged design, and the highly important fact that it is entirely free of all moving parts in the hot zone, the operating and maintenance costs are unbelievably low. The maintenance costs in themselves are considerably less than half of those obtained from its closest rival.

### Economics

● The operating costs are low, as little manual labor is required other than a routine checking of operation. In the case of the sulphite mill, the duties of the flash roaster operator and the second digester helper may be combined without hardship.

Operating and maintenance costs for the flash roaster rarely exceed those incurred in the burning of brimstone for sulphur dioxide production, and are about half of those incurred in the operation of other types of roasters.

The high steam recovery indicated above is in most cases entirely applicable against savings. This amounts to \$1.96 per long ton of equivalent sulphur with steam valued at 25 cents per thousand pounds.

Furthermore, pyrites flotation concentrates are today available in a high grade form for flash roasting at a cost of from 25 to 60 per cent of brimstone delivered at many pulp mills or acid plants in either the United States or Canada. This

represents a saving of from \$10.00 to \$15.00 per long ton of equivalent sulphur.

Where the quantity of brimstone used in a plant is 5000 long tons per year, a yearly saving of \$60,000.00 to \$85,000.00 could be effected.

As the saving is of very substantial magnitude, every producer of sulphur dioxide gas should give the most careful consideration to the application of this simple, economical and highly efficient system.

### Rayonier Men Join Superintendents Association

● Since June four Pacific Coast men have joined the American Pulp & Paper Mill Superintendents Association, three of them being connected with Rayonier Incorporated, Grays Harbor Division at Hoquiam, Washington.

The three: L. R. Wood, Anton Gustin and John F. Weiblen. The fourth Coast man to join was Alfred R. Webb of Pacific Mills, Limited's converting plant in Vancouver, B. C.

### Protect Your Job While Vacationing

● Men in the pulp and paper industry of the Pacific Northwest should be more careful than the general public about fire when taking their vacation trips this summer, for forest fires destroy the basic raw materials upon which the industry depends.

Protect your job while vacationing is a slogan all mill men should follow. The U. S. Forest Service has determined that 76 per cent of all forest fires are man-caused. Smokers start 28 per cent; campers, 12 per cent; firebugs, 19 per cent; logging, 3 per cent, and railroads, 1 per cent.

Recreationists start 40 per cent of the man-caused fires through carelessness.

### Colson New Assistant Superintendent at Ocean Falls

● The new assistant superintendent of Pacific Mills, Ltd., division of Crown Zellerbach Corp., at Ocean Falls, B. C., is G. H. Colson, who comes to his new post from the Sorg Paper Co. of Middletown, Ohio, where he spent nine years in the same capacity.

Mr. Colson began his papermaking in England, where he was for nine years with The Thames Mill. Later he was in India, serving as assistant superintendent of the Titaghur Paper Co. for seven years. He has had a well rounded experience in making paper from all sorts of materials, from bamboo on.

Several months ago Mr. Colson arrived at the Crown Zellerbach plant at Camas, Washington, where he worked on the company's problems prior to going to Ocean Falls. In the interim, E. W. G. "Ted" Cooper, assistant paper mill superintendent at Camas, went north to Ocean Falls to consult with the operators there.

Mr. Colson left Camas shortly after the middle of August to take up his station at Ocean Falls, and it is understood that Mr. Cooper will return to the States shortly.

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## Fibreboard Mill Scene of Radio Broadcast

● The Fibreboard Products, Incorporated, pulp and paper mill at Port Angeles, Washington, was the scene of a radio broadcast over Seattle Station KJR on August 1st. It was the feature of one of the Washington at Work programs sponsored by the Puget Sound Power & Light Company.

The August issue of the Fibreboard Blow-Pit, published by the employees of the Port Angeles mill and edited by John Langton, tells the story. Quoting:

"Chosen to represent the Northwest's share of America's billion dollar paper industry, the Port Angeles division of Fibreboard Products went on the air last Tuesday evening over station KJR as the feature of the regular Washington at Work program.

"A step by step description of the various processes in converting wood into pulp and pulp into finished paperboard was effectively presented against a background of the actual sounds throughout the mill. The staccato machine gun bark of the chipper, the rhythmic rumbling of the flat screens and the whining roar of the jordan created a realistic tone picture which made the verbal description of paper making dramatic and understandable to the layman.

"The preparation of the recording, done two weeks before the broadcast was given, was an interesting piece of work. A sound engineer maneuvered his truck into various strategic points about the mill in order to pick up the sound of machinery while the announcer and our department heads gave their question and answer description from these same stations. Ed Cavanaugh acted as the guide, giving a description of the wood yard, types of wood used, the machinery used in producing both mechanical and chemical pulp, and then conducted the announcer to the wet room where Tom Beaune was introduced. Tom was in turn cross-questioned about the various steps in refining sulphite pulp.

"At this point the recording shifted to the paper mill where Vern Basom described the function of the beaters and the operation of the paper machine.

"The final section of the program consisted of an interview with Manager Bundy who gave much interesting information in regard to the paperboard industry in general and correlated our own part in it. He mentioned briefly the wide range of uses for which our products are intended and their range of the distribution—the Pacific Coast, New Zealand, Australia, South Africa, the Philippines and Hawaii. As to the importance of this industry to the Northwest, Bundy stated that our own plant, for instance, placed about \$68,000,000 into circulation every month through payrolls and purchases.

"The broadcast, while serving to acquaint the layman with the paperboard industry, had the secondary effect of reminding the employees of this plant of its importance in the paperboard industry."

## Pulp Prices Govern Paper Prices

Writing in the June 8, 1939, issue of The World's Paper Trade Review, published in London, the editor commented in part:

● Most paper makers would welcome an increase in pulp prices, as it would undoubtedly bring to the market that stimulation which is needed if paper makers in turn are to receive some measure of recompense for the work which they do. It is perfectly clear that the paper price reduction which took place during the autumn and winter has had little effect in stimulating trade; in fact, the effect has been rather the opposite, and it has resulted in paper prices which were barely adequate being cut to a level at which few mills can survive. At no time in 1937 did the advance in paper prices in any way correspond with the increase in pulp prices, so it is unfortunate that the relative prices of paper have been allowed to slip back as much as they have done.

One of the reasons for this was that some of the mills with weaker financial connections were unable, in 1937, to place contracts for wood pulp for any distance ahead. With the advent of a rapid decline in pulp prices, these less strong mills were favourably placed, as taking pulp from hand to mouth, their current purchases were made on a very weak market at almost pre-rise price level.

There is another lesson for the pulp producers and sellers here, and one for which they should seek a remedy if there is to be stability in the market, and if justice is to be given to those firms whose financial stability runs to the usual type of contract.

## U. S. Pulp Production Highest in Three Years

● Revised estimates of the Forest Products Division of the Department of Commerce place the production of woodpulp in the United States for the first six months of 1939 at 3,479,455 tons.

This amounted to a 27 per cent increase over the production in the corresponding first six months of 1938, and was slightly above the production for the first half year of 1937.

June production of wood pulp totaled 594,000 tons, a decrease of 4 per cent below the May production, but higher than the production in June, 1938.

Imports of wood pulp for the first six months of 1939 totaled 833,744 tons, an increase of 15 per cent over the quantity imported in the first six months of 1938, but 27 per cent below imports in the first half of 1937.

The increase in pulp production was due to higher operating schedules of self-contained pulp and paper mills as the paper industry ran at 80.2 per cent of capacity in the first 31 weeks of this year compared with 68.3 per cent of capacity in the same period of 1938.

American pulp mills producing pulp for the market operated at a slightly better rate of production than in the first half of 1938 but exact figures are not available as yet. However, they are a long way from operating at capacity due to the low prices set by imports from depreciated currency countries.

## Svarre Hazelquist Leaves for Australia

● Svarre Hazelquist, chief chemist of the Longview Mill, Pulp Division, Weyerhaeuser Timber Company, Longview, Washington, left San Francisco on August 15th on the S. S. Mariposa for Australia.

Mr. Hazelquist will be away from Longview about six months. While in Australia he will assist the Australian Paper Manufacturers, Limited, in starting up a new and modern bleaching plant which is now under construction in one of the company's mills.

A year ago last spring a party of executives of the Australian concern visited the United States, including Sir Herbert Gepp, chairman of the board. The Weyerhaeuser bleached sulphite pulp mill at Longview was one of those mills visited. Recently the Australian Paper Manufacturers wrote the Pulp Division asking that one of their men be loaned to them to help in placing their new bleaching plant in operation. Mr. Hazelquist was selected to make the trip.

He is a graduate in chemical engineering from the University of Washington and has been with the Longview Mill since operations began late in 1931.

## Fall Meeting of TAPPI At Syracuse September 12-14

● The annual Fall Meeting of TAPPI is being held this year at the Hotel Syracuse in Syracuse, New York.

The general chairman of the meeting is Carl B. Martin, vice-president of the St. Regis Paper Company, who was a Coast visitor in June. Assistant general chairman is Carl F. Richter, president of the Stebbins Engineering & Manufacturing Company at Watertown, New York.

The technical program is being planned by Professor C. E. Libby of the New York State College of Forestry at Syracuse and arrangements are in charge of M. W. Phelps who was formerly associated with the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation at Camas, and with Pacific Mills, Limited at Ocean Falls, B. C.

The Empire State Section of TAPPI is sponsoring the Syracuse meeting. Those planning to attend should make advance arrangements with Convention Headquarters, Hotel Syracuse, Syracuse, New York.

## Fahlstrom Makes Trip To Old Home

● Carl Fahlstrom, newly appointed assistant resident manager of the Longview Fibre Co., recently went east from Longview and visited Appleton and other Wisconsin points while on vacation. Among the mills he visited were Tomahawk, Marathon and Thilmany. He also met with Dr. C. E. Curran at the Forest Products Laboratory at Madison. He took his family along on the trip, traveling by train.

R. G. Armstrong, office manager, was away from the plant early in August for two weeks, on a trip to San Francisco with his family.

H. C. Wall, chief chemist for Longview Fibre, was also away during the month on a vacation from industrial cares.



# ENDORSED BY PAPER MAKERS



VAPOR ABSORPTION

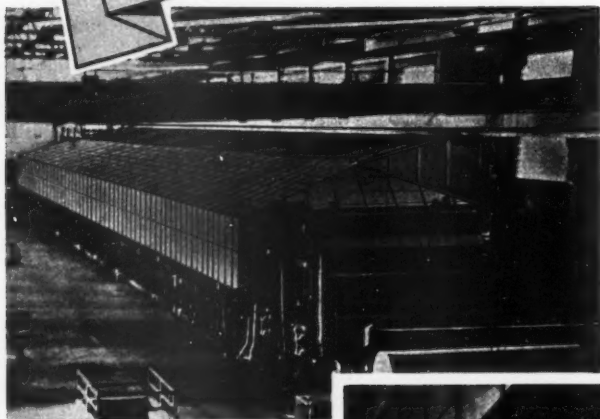
HIGH PRESSURE  
VENTILATION

BRINER ECONOMIZER

MACHINE HOODS

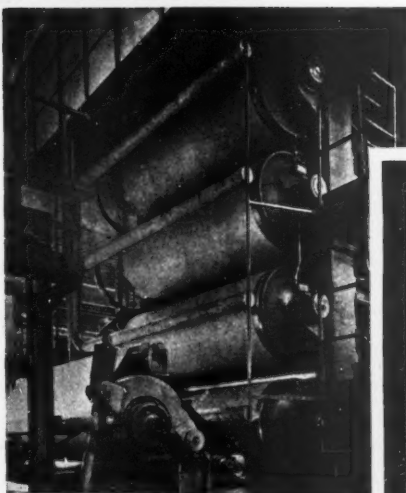
AIR CONDITIONING

GRINDER EXHAUST  
AUXILIARY SYSTEMS



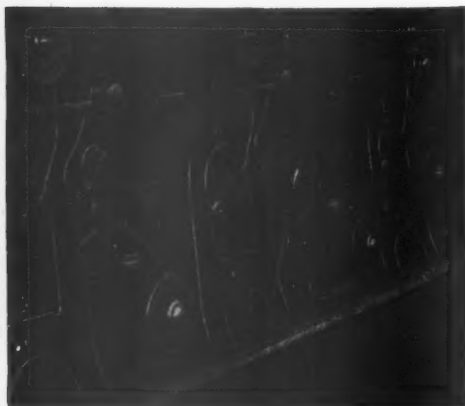
Above: Ross Panel Hood with exhaust connections—the longest machine hood in the world.

Any plan for mill modernization to achieve better production and greater operating economy can utilize one or more of the Ross Systems to real advantage. Among the new mills, Ross apparatus for the various departments has become practically standard equipment. For machine room or grinder room, for major or minor requirements, a Ross engineer can help you complete your modernization plans.



At Right: View showing nozzles of Heavy Duty Vapor Absorption System applied to vertical stack machine.

Below: Small pipes and nozzles of Ross-Grewin System discharging air into pockets at high velocities.



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## Recent German Developments In Rayon And Staple Fiber

● Production of staple fiber in Germany in 1938 approximated 155,000 metric tons (341,716,000 pounds). By the end of the first quarter of 1939, the productive capacity of the industry (including mills in Austria and Sudetenland) was estimated at 197,000 tons (434,000,000 pounds); further extensions and new construction were expected to add a substantial volume to potential capacity before the end of current year. Trade reports place the aggregate annual capacity of new mills under construction and of projected enlargements of existing plants at nearly 100,000 metric tons, but doubt is expressed that this program can be realized in the near future. (Metric ton, 2,204.6 pounds).

The largest German organization in the production of staple fiber, the Deutscher Zellwollring (with 7 plants), has a daily output of about 220 metric tons (485,000 pounds), representing 35 to 40 per cent of the total production of staple fiber in Germany, according to trade reports. The daily output of the Deutscher Zellwollring is said to comprise 156 metric tons of the so-called "B-cell-wool" which is suitable for cotton spinning machinery, 60 tons of "W-cell-wool" suitable for wool-spinning machinery, and 6 metric tons of fiber made from casein. The staple fiber production of this organization is sold exclusively through its sales organization "Deutsche Zellwoll-Ring-Verkaufsgemeinschaft G.m.b.h.," which also supplies spinners, weavers, and finishers with technical and other information. Another group of 3 firms has a joint sales organization for their staple fiber output which comprises 8 types, including one suitable for carpet manufacture and another intended as a jute substitute. The annual potential capacity of the 3 firms is in excess of 60,000 metric tons, according to trade sources.

Fiber from casein is being produced in Germany at the present time to the extent of approximately 100 metric tons (220,460 pounds) a month, chiefly for use in the hat and felt manufacturing industries, according to trade reports which state that this type of fiber was not produced in Germany until 1938; the fiber is marketed in Germany under the name of "Tiolan." Efforts are being made to increase casein production in Germany during the next few years to about double the 1937 figure of 4,600 metric tons. A recent development has been the experimental production of cellulose in flake form (from Silesian pine) to be used in the manufacture of rayon and staple fiber.

Production of rayon in Germany in 1938 approximated 65,000 metric tons (143,000,000 pounds); the output for the month of May, 1939, was placed at 6,200 metric tons (13,669,000 pounds), indicating a substantial increase for the current year; 1938 production in Germany of cord rayon (for tire manufacture) is reported to have been 750 metric tons (1,653,500 pounds) but this year's output is expected to be about 3 times that of 1938, with further expansion contemplated according to trade reports.

## Use of Cotton Reduced

● The use of cotton or cotton mixtures in numerous lines has been forbidden in Germany, as from July 1, 1939. Among the items affected by the prohibition are printed goods, dress goods, handkerchiefs for women, upholstery and decorative materials, leather-substitute materials, and curtains. Manufacturers must produce good merchandise and products which the nation needs, and it has been stated that severe measures will be taken against manufacturers of "trashy goods." The necessity for the textile industry concentrating on the most pressing needs of the country is reported to arise principally from the difficult raw material situation.

## Imports and Exports

● Germany imported raw staple fiber to the amount of 2,226 metric tons during the first quarter of 1939, of which 2,195 came from Italy; for the same period, exports of staple fiber totaled 904 tons valued at 1,035,000 reichsmarks (\$415,000), of which 211 went to Hungary and 207 to the United States.

Imports of rayon yarn into Germany during the first quarter of 1939 amounted to 2,224 metric tons valued at 6,524,000 reichsmarks (\$2,616,000), chiefly from Italy, Netherlands, Switzerland, Belgium, and France. Exports of rayon yarn totaled 1,325 metric tons valued at 4,469,000 reichsmarks (\$1,792,000), mostly to continental European countries, but 46 tons went to Argentina and 40 tons to Turkey in the first 3 months of 1939.

## Why Not Visit the Modern Coast Mills?

● During September and October a group of members of the Technical Section of the Paper Maker's Association of Great Britain plan to visit Eastern Canada and the Eastern and Middle Western parts of the United States.

The detailed itinerary was announced in a recent issue of The World's Paper Trade Review published in London. Sailing from Liverpool on September 8th the party will go first to Baie Comeau arriving there on the 17th. A number of Eastern Canadian mills will be visited between the 17th and the 28th when the party will visit the Hammermill Paper Company's plant at Erie, Pennsylvania. From there to Detroit and on to Chicago.

From Chicago the next stop is Kalamazoo, then to Columbus, Ohio, and to Chillicothe for visits at the Mead Corporation plants. Washington, D. C., follows on the itinerary and then the Scott Paper Company's large tissue mill at Chester, Pennsylvania and the Container Corporation's large plant at Philadelphia. From October 7th until 11th the time is allocated to New York and the World's Fair.

It is to be regretted that a trip to the Pacific Coast has not been arranged, at least for some of the party who would find the modern mills well worth their seeing.

Possibly it is not too late if the Pacific Coast pulp industry is interested in having a few of the English operators see their mills. They might be persuaded to defer their return long enough for a trip to the Pacific in order to obtain a more complete picture of the industry on the North American continent.

## Rayon Yarn Production Rises in First Half

● The United States production of filament rayon yarn in the second quarter of 1939 was 73,600,000 pounds. This is 10 per cent less than the 81,700,000 pounds produced during the first quarter of the current year, but 37 per cent greater than the 53,700,000 pounds produced in the second quarter of 1938, says the Rayon Organon.

While second quarter yarn production totaled 73,600,000 pounds rayon yarn shipments in the same period amounted to 81,900,000 pounds. This "deficiency," says the Rayon Organon, was, of course, made up by withdrawals from producers' yarn stocks, yarn inventories in the hands of producers thereby declining from 41,100,000 pounds at the end of March to 32,600,000 pounds at the close of June. By adopting this conservative production policy, yarn producers were able not only to sharply reduce their stocks of yarn, but also to make the necessary repairs and changeovers in preparation for the usually heavy third quarter production schedules.

In the first half of 1939 production of rayon filament yarn and staple fiber combined amounted to 177,800,000 pounds as compared with a production of 122,600,000 pounds in the first half of 1938, an increase of 55,200,000 pounds or 45 per cent.

Filament yarn production in the first half of the current year amounted to 155,300,000 pounds as compared with 110,800,000 pounds in the same period of 1938, an increase of 44,500,000 pounds or 40 per cent.

Staple fiber production, although still small in poundage comparison with the filament yarn, is growing rapidly in this country. The first half of 1939 production was 22,500,000 pounds as compared with 11,800,000 pounds in the same period of 1938, an increase of 91 per cent.

● Imports of staple fiber rose during the first half of the year from 6,700,000 pounds in the 1938 period to 21,000,000 pounds in the first half of 1939, an increase of 14,300,000 pounds or 213 per cent.

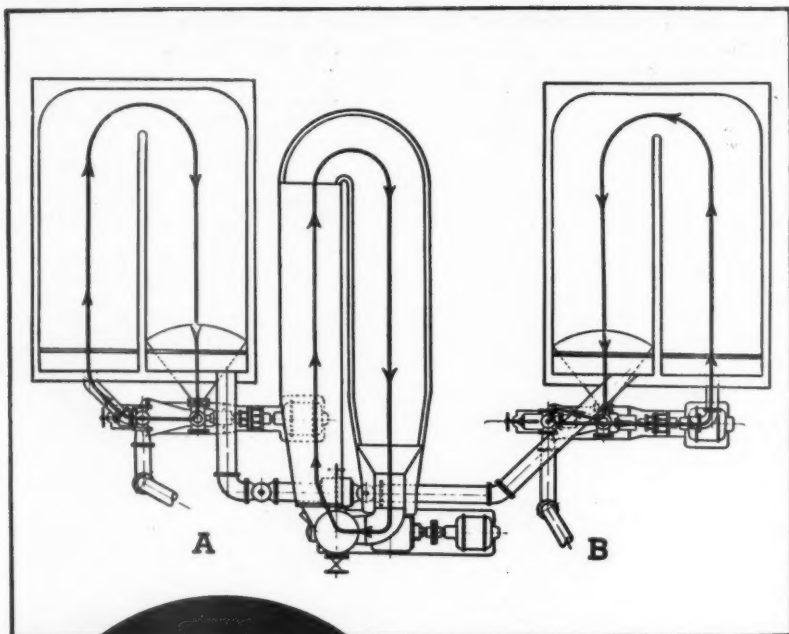
Of this total of 21,000,000 pounds of staple imported in the first six months, 68 per cent came from the United Kingdom, 15 per cent from France, 6 per cent from Germany, 2 per cent from Belgium and 1 per cent from Japan.

## Paper and Board Production Increases

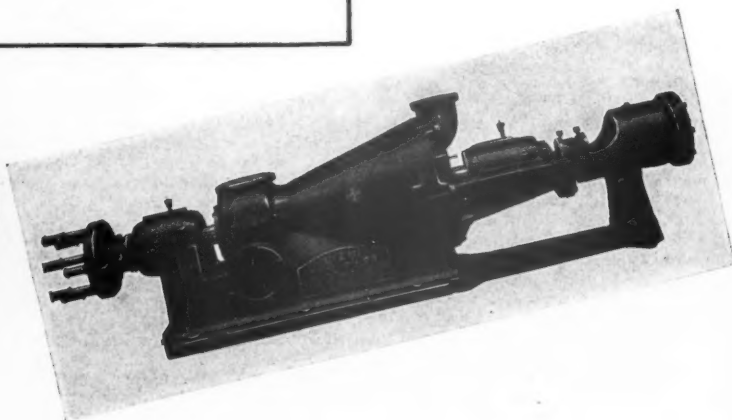
● Production of paper and paperboard in the United States during the first six months of 1939 totaled 6,565,740 tons, or 19 per cent more than was produced in the corresponding six months of 1938, the Forest Products Division of the Department of Commerce announced today.

The 6,565,740 tons of paper and paperboard produced was only 10 per cent lower than the peak production year of 1937, and was 17 per cent greater than the total produced in the first six months of 1936.

June production of paper and paperboard amounted to about 1,066,390 tons, or 14 per cent less than the May production. This was slightly greater than the production in June, 1938, and slightly less than the June, 1937, production.



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## DROP FREENESS 219 c. c. In An Hour?

Here's the case history—using a furnish of 50% sulphite and 50% box cuttings in a 2,800 lb. batch.

Stock dropped from pulper into cycling chest—freeness 497. At end of 15-minute period after  $1\frac{1}{2}$  passes through cyclifiner—freeness 450, a drop of 47 cc. At end of 30-minute period, after  $3\frac{1}{2}$  passes through cyclifiner—freeness 403, drop of 94 c. c. At end of 40-minute period—

freeness 364, drop of 133 c. c. At end of hour (60-minute period), after 8 passes through cyclifiner, freeness 278, drop of 219 c. c.

Stock at this point (milk bottle) ready for light jordaning before going to paper machine.

Can you do this or anything comparable to it on your stock? If not, let Shartle show you how you can do it—and inexpensively. Shartle Brothers Machine Company, Middletown, Ohio.

# SHARTLE

## STOCK CYCLING SYSTEM



## July Newsprint Production Higher Than in 1938

● Production in Canada during July, 1939, amounted to 227,630 tons and shipments to 221,743 tons, according to the News Print Service Bureau. Production in the United States was 74,932 tons and shipments 75,354 tons, making a total United States and Canadian news print production of 302,562 tons and shipments of 297,097 tons. During July, 25,795 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 328,357 tons. Total production in July, 1938, was 286,796 tons.

The Canadian mills produced 106,277 tons more in the first seven months of 1939 than in the first seven months of 1938, which was an increase of seven and three tenths per cent. The output in the United States was 89,588 tons or nineteen and six tenths per cent more than in the first seven months of 1938, in Newfoundland 11,085 tons or seven and three tenths per cent more, making a total increase of 206,950 tons, or ten per cent.

Stocks of newsprint paper at the end of July were 202,051 tons at Canadian mills and 17,006 tons at United States mills, making a combined total of 219,057 tons compared with 213,592 tons on June 30, 1939.

## Newsprint Production In June

● Production in Canada during June, 1939, amounted to 240,545 tons and shipments to 232,261 tons, according to the Newsprint Service Bureau. Production in the United States was 80,562 tons and shipments 84,628 tons, making a total United States and Canadian newsprint production of 321,107 tons and shipments of 316,889 tons. During June, 22,937 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 344,044 tons. Total production in June, 1938, was 387,265 tons.

The Canadian mills produced 81,193 tons more in the first six months of 1939 than in the first six months of 1938, which was an increase of six and four tenths per cent. The output in the United States was 77,934 tons or nineteen and eight tenths per cent more than in the first six months of 1938, in Newfoundland 6,262 tons or four and seven tenths per cent more, making a total increase of 165,389 tons, or nine and three tenths per cent.

Stocks of newsprint paper at the end of June were 196,164 tons at Canadian mills and 17,428 tons at United States mills, making a combined total of 213,592 tons compared with 209,374 tons on May 31, 1939.

## Camas Employees Hold Picnic

● The annual Papermakers' Picnic, a union affair, was held August 13 at the steel bridge near Camas, for employees of the Crown Zellerbach Corp. Al Green was chairman of the affair, assisted by Tom Carras and Arthur Repman.

## SPS Members Agree To Five Week Curtailment

● It was reported from Sweden in July that the SPS (Sulphite Pulp Suppliers) had agreed to a five weeks shutdown between July 1st and December 31st, 1939, in an effort to prevent further accumulation of pulp stocks and to stabilize the market.

## Bailey Joins Bulkley, Dunton Pulp Co.

● The Bulkley, Dunton Pulp Company, with headquarters at 295 Madison Avenue, New York City, announces that Milton R. Bailey of Kalamazoo, Michigan, joined their Middle Western sales organization early in August.

Mr. Bailey has been associated with The American National Bank of Kalamazoo as vice-president. In joining Bulkley, Dunton, Mr. Bailey brings a varied experience and a personal reputation which the company believes will be of great value in serving the paper industry of the Middle West.

In his new work Mr. Bailey will be closely associated with Roger Egan and Rex Vincent, completing a combination of technical and business experience designed to render the best possible service to Bulkley, Dunton's customers.

## Camas Vacation

● Familiar faces were missing from Camas during the past month, while a number of the key men took vacations. George Charters, assistant resident manager, took his family to a ranch in eastern Oregon for a week, to do a bit of fishing and riding. Howard Green, in charge of the order department, took a vacation trip to Seaside.

A. G. "Buff" Natwick, assistant resident manager, has not yet left on his customary fishing trip, but expects to go the last week in August. This year he plans to go fishing in the Columbia River near Astoria, to snare the wily salmon. "I'd hate to be a salmon when I get down there," says Buff.

## Art Zimmerman Takes a Vacation

● Arthur Zimmerman, vice-president and general manager of the Pacific Straw Paper & Board Co., went south to San Francisco, Carmel, etc., the first week of August to take a few days of well-earned vacation. In Palo Alto he visited with H. A. "Gob" Des Marais of the General Dyestuffs Co., an old friend. With him went his wife and son. They drove down the coast route through the redwoods, returning via the valley route, Crater Lake and Timberline Lodge.

## Three Camas Men Receive Service Pins

Three more employees of the Crown Willamette Paper Co., division of Crown Zellerbach Corp., received long-time service pins this month. Harry Clark, assistant steam engineer, was awarded his 30-year pin. George Nott, shift foreman in the kraft mill, and Fred Hudson of the steam plant both received 20-year pins.

Roy Young of the San Francisco office presented the pins to the men at the Foremen's Club picnic at Dead Lake, on August 4.

## Coleman Celebrates Twenty-Five Years With Paraffine

● James T. Coleman, general plant superintendent of the large No. 1 plant of The Paraffine Companies, Inc., at Emeryville, California, celebrated his 25th year with Pabco on August 16th with a luncheon party given in his honor by executives and employees of the company.

Mr. Coleman, who came to work for the company as a machinist rose through the ranks to head the West's largest building materials factory. In addition to his company responsibilities Mr. Coleman is a councilman of Emeryville and a member of the school board.

## New Residents Arrive in Camas

● Two new notables arrived recently at Camas, Wash., to join the ranks of papermakers there.

To G. H. "Pinky" Galloway, assistant to Fred Olmsted in the Crown Willamette technical department, came a son the latter part of last month, to be known as Richard Galloway.

James Hull of the Crown Zellerbach research laboratory became the father of a new daughter, born shortly after the Galloway youngster arrived.

## Nash Engineering Introduces Glass Pump

● The Nash Engineering Company of South Norwalk, Connecticut, announced late in July the perfection of a centrifugal pump made of glass.

"An entirely new kind of pump," says Nash, in making the announcement. Produced in but one size at present, the glass pump will very likely be made in other sizes as the demand for it develops in the process industries. The first model is designed to handle 6,000 gallons per hour with the impeller rotating at 1,760 r.p.m. Under normal operation the pump can operate with a static pressure on the suction of 20 pounds per square inch, with a discharge pressure up to 50 pounds.

Made of Pyrex heat resisting and shock resisting glass, the pump impeller and casing are not affected by temperatures up to 150 degrees Fahrenheit in standard design and 200 degrees Fahrenheit in special design.

"Corrosive acids and chemical fluids in commercial quantities have long been one of the most difficult handling problems of the chemical engineer," says the Nash bulletin. "These fluids quickly destroy metal pipes and pumps, also minute traces of corrosion impurities may completely change chemical reactions, and the resulting product. Laboratory and other equipment of glass has solved many of these problems, and now a perfected pump of glass gives the chemical and process engineer a wonderful new tool."

The glass casing is protected with a cast iron bracket which protects the pump and also takes up any strain from the piping connections. The bracket does not interfere with the transparency of the pump.

The new pump was announced in a striking bulletin, with the first two pages die cut out to show how the glass pump is designed and protected by the iron bracket.

# Penetration of Liquids in Douglas Fir As Affected by the Position of the Tori in the Pit-Pairs

by CLARENCE D. STONE\*

## Introduction

● The manner in which liquids penetrate wood is a problem which has stimulated a considerable amount of experimental work. Although numerous conclusions have been reached and several theories presented, one is yet to be universally accepted. The solution of this problem will not only be of scientific interest, but the resulting information will be of practical value in connection with future developments in both the pulp industry and in wood preserving.

A survey of prior work will, for the most part, be omitted inasmuch as it adequately treated in numerous publications (1-13 inclusive). Most of the theories which have been offered to date attach much significance to the function of the bordered pit-pairs. Griffin, Phillips and others (6, 7, 9, 12, 13) concluded that the position of the tori (whether aspirated or central) in the pit-pairs has a definite effect on the penetration of liquids. Some investigators (1, 2, 3, 8, 10) have attached importance not only to the position of the tori but also to the entire structure of the bordered pit-pairs, maintaining that the minute perforations of the pit membranes allow the passage of liquids from tracheid to tracheid.

Assuming that this is true, it would seem plausible to expect a systematic correlation between the position of the tori in the pit-pairs and the permeability of the wood to liquids such as, for instance, the cooking liquors used in pulp manufacture. Previous investigations (6, 7, 9) have attempted to establish such a correlation, primarily in respect to the penetration of wood preservatives. Griffin (5, 6), in a study of lowland and Rocky mountain Douglas fir, derived the following conclusions:

1. A considerable number of the summerwood tori in both sapwood and heartwood of the mountain-grown specimens of Douglas fir were already aspirated in the green wood. This was not true in the lowland specimens.
2. In the air-dry sapwood and heartwood of the mountain-grown material a still larger proportion of aspirated tori were found in both springwood and summerwood. In the air-dry heartwood of the lowland material aspirated tori were noted in the springwood, but in the summerwood the tori were all in the central position.
3. Oven-drying tended to increase the number of aspirated tori in both mountain and lowland specimens.
4. Treatments of air-dried material with air and steam caused no apparent displacement of the tori from the position held in the matched untreated pieces from specimens.
5. Green lowland-green material soaked in alcohol and then oven-dried showed the tori in the same position after

treatment that they held when the wood was in the green condition—that is, they did not become aspirated on drying, as did the tori in specimens not treated with alcohol.

6. Creosoted specimens showed a fair to good penetration, especially in the summerwood of the lowland fir, but very poor to practically no penetration in the mountain-grown material. Lack of penetration coincided directly with the number of tori aspirated.

Phillips (9), in a more recent investigation, substantiated Griffin's findings and in addition attempted to explain the movement of the torus (i.e. from a central to an aspirated position) on the basis of moisture changes in the wood. His studies led him to believe that the movement of the torus is governed mainly by two factors—the loss of moisture when the wood was above the fiber saturation point and the thickness of the cell walls.

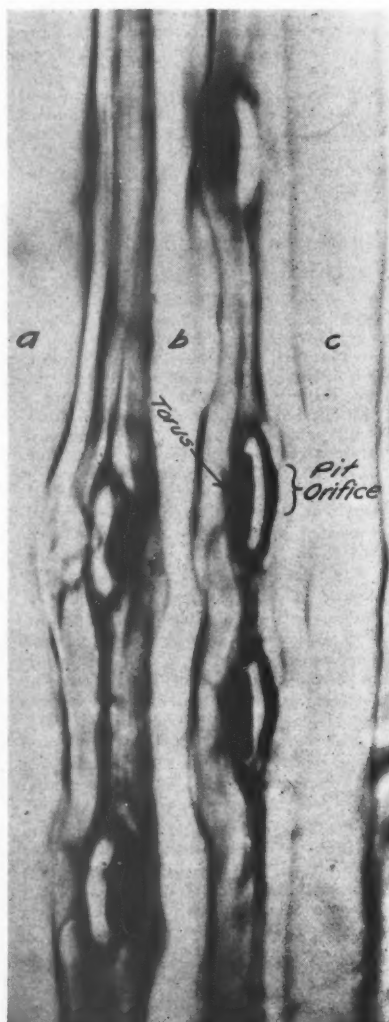
## Experimental Procedure

● The present investigation has been carried out primarily in an attempt to amplify the work in the above mentioned studies and was initiated due to the seeming insufficiency of the data upon which Griffin's conclusions were based and the lack of data in connection with the published findings of Phillips.

Representative samples of green lowland Douglas fir were obtained from regions adjacent to Seattle, Washington. After being reduced to small blocks (with the exception of those specimens which were later creosoted), the samples were then prepared as follows:

1. **Green untreated**—green blocks were stored in tap water to prevent drying.
2. **Air-dry untreated**—green blocks were exposed to normal air-drying conditions until a constant moisture content was reached.
3. **Oven-dry untreated**—green blocks were kept in an oven at a temperature of 212 degrees F. until the moisture content became constant.
4. **Air-dry steam treated**—air-dry blocks were steamed in an autoclave for one hour, the pressure being maintained at approximately 20 pounds per square inch.
5. **Green, alcohol treated, oven-dried**—green blocks were soaked for five days successively in a series of water-alcohol mixtures of 50, 95 and 100 per cent respectively, followed by oven-drying.
6. **Green creosoted**—incised green wood was given an 8 pound treatment by the West Coast Wood Preserving Company. The wood was boiled under a vacuum at 190 degrees F., the vacuum reaching 23 inches in 12 hours. A pressure of 102 pounds per square inch was applied for 2 hours, the temperature of the oil then being 200 degrees F. A final vacuum was drawn for 2 hours. The total time of treatment was 18.3 hours.

7. **Air-dry creosoted**—air-dry wood was given an 8 pound treatment by the West Coast Wood Preserving Company. The wood was boiled under vacuum at 190 degrees F., the vacuum reaching 23 inches in ten hours. Pressure was applied for 2 hours, the temperature of the oil being 200 degrees F. A maximum pressure of 110 pounds was reached in 1.7 hours. The total time of treatment was 17 hours. The creosoted specimens were reduced to small blocks. All blocks having a low



The tori in the pit-pairs of the cells (tracheids) 'a', 'b' and 'c' have acted as valves in closing the pit orifices leading into cell 'b'. Unstained section, Douglas fir. Magnification, 1,750 diameters.

\*College of Forestry, University of Washington, Seattle.

moisture content were saturated with water by means of a hot and cold water bath. Tangential sections, 6 microns thick, were cut on a Spencer sliding microtome. All sections, except those creosoted, were mounted directly from water after cutting, as the tori were visible without differential staining and the use of a commercial dextrose syrup (14) as a mounting medium eliminated the necessity of dehydrating the sections in absolute alcohol and a consequent possible displacement of the tori from the positions in which they were found in the sections as cut. The creosoted sections were washed with a 15 per cent alcohol solution to remove the oil in order that the tori could be observed, the alcohol being of a low concentration so as not to produce any dehydrating effect on the sections.

The slides were then studied by means of a binocular compound microscope, the sections being magnified approximately 440 times. Representative strips were taken through each section, this being done by means of a mechanical stage, and the number of central and aspirated tori were recorded.

### Discussion

● An analysis of the experimental results reveals some interesting observations. Contrary to former investigations, the result of the present study definitely indicates that a condition does not exist in any morphological division of lowland Douglas fir wood where the tori in the pit-pairs are all in either a central or an aspirated position. The reason for this discrepancy undoubtedly lies in the small number of tori observed in former investigations.

The most important result of the present study is the apparent lack of correlation between the position of the tori in the bordered pit-pairs and the permeability to liquids. It is interesting to note that recent work completed by Erickson, Schmitz and Gortner (4) on the measurement of the permeability of woods to liquids confirmed the above results as follows:

"From the reports in the literature concerning pit aspiration, one would expect that seasoned sapwood would be practically impervious. If, as Griffin, Phillips, and others report, aspiration is so complete as to leave only a very few unaspirated pits per tracheid, especially in the springwood, then one would expect a pronounced drop in permeability with seasoning to a relatively dry condition. Since a pronounced reduction in permeability was not found for the majority of cases, it indicates that if pit aspiration occurs, it does not have the marked influence on permeability which has been attributed to it."

In the conclusions of the above report were included the following generalizations:

"The change in the permeability of sapwoods caused by seasoning varied with the kind of wood. With few exceptions, no great change occurred with seasoning. Seasoned heartwoods were generally about as permeable as the unseasoned. Either pit aspiration does not occur as extensively and intensively as reported in the literature, or else it does not greatly influence longitudinal permeability."

It seems apparent that a satisfactory explanation of the manner in which liquids penetrate Douglas fir has not yet been found. The present investigation of the position of the tori, resulting in

the tentative rejection of the formerly accepted theory regarding the effect of the tori on the penetration of liquids in Douglas fir, is the first of a series of experiments attempting to solve this much debated question.

### Conclusions

1. A comprehensive study has been made of the position of the tori in the pit-pairs of green untreated, air-dry untreated, oven-dry untreated, air-dry steamed, green—alcohol treated—oven-dried, green creosoted and air-dry creosoted lowland Douglas fir. This investigation was undertaken in an attempt to determine whether or not there existed a correlation between the position of the tori in the pit-pairs and the permeability of the wood to liquids.
2. In general, the present study strongly indicates that contrary to the conclusions of previous investigations the apparent position of the tori in the bordered pit-pairs has a negligible effect on the penetration of liquids in Douglas fir.
3. The majority of the tori in the bordered pit-pairs of lowland Douglas fir heartwood (springwood and summerwood) appear to be in the aspirated position.
4. Except in the green untreated summerwood, the majority of the tori in the bordered pit-pairs of lowland Douglas fir sapwood appear to be in the aspirated position.
5. In the morphological divisions of Douglas fir that are known to be quite readily permeable to liquids, whether green, air-dry, or oven-dry, the majority of tori are either in an aspirated position, or the ratio between the tori in the central and aspirated positions is not high enough to suggest that this factor is of significance in grouping such woods on the basis of permeability.
6. Steaming of air-dry wood does not change the position of the aspirated tori. Steaming of green wood may have a slight tendency to cause some of the tori in the central position to become aspirated.
7. The soaking of green wood in alcohol before air-drying does not prevent the majority of the tori from becoming aspirated.
8. The majority of the tori in the bordered pit-pairs in green and air-dry Douglas fir wood thoroughly impregnated with creosote oil were found to be in an aspirated position, indicating that the position of the tori is not a determinative factor in the creosoting of wood.
9. The mechanism of the penetration of liquids through wood is not fully explained by investigations that have been made in the past, and further research, of especial importance to the pulp industry as well as the wood preserving industry, is vitally needed.

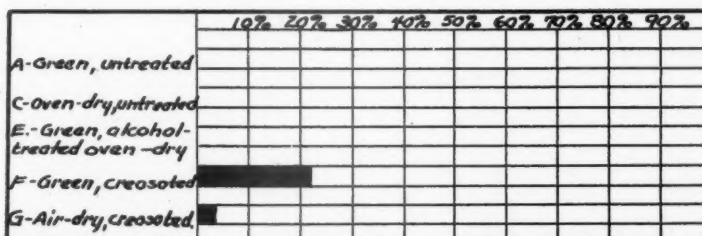


Fig. 1 (Griffin) Heartwood-Springwood-Lowland Douglas Fir. Per cent of tori in central position—Based on 130 tori.



Fig. 2 (Griffin) Heartwood-Summerwood-Lowland Douglas Fir. Per cent of tori in central position—Based on 106 tori.

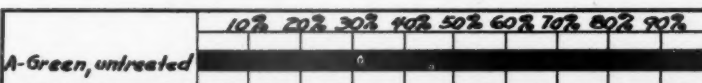


Fig. 3 (Griffin) Sapwood-Springwood-Lowland Douglas Fir. Per cent of tori in central position—Based on 10 tori.

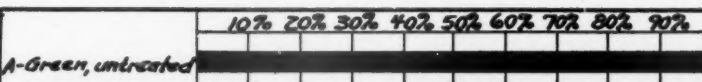


Fig. 4 (Griffin) Sapwood-Summerwood-Lowland Douglas Fir. Per cent of tori in central position—Based on 10 tori.





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## Literature Cited

1. Bailey, L. W. The Preservative Treatment of Woods: Forestry Quarterly: 11: 5-21: 1913.
2. ———. Permeability as Affected by Wood Structure: Amer. Ry. Eng. Assoc. Bull.: 174-195: 835-851: 1915.
3. ———. Structure of Bordered Pits as Related by Sap Ascent and Tension Hypotheses: Botanical Gazette: 62: 133-142: 1916.
4. Erickson, H. D.; Schmitz, Henry; and Gortner, R. A. The Permeability of Woods to Liquids and Factors Affecting

the Rate of Flow: Univ. of Minn. Agr. Exp. Sta.: Tech. Bull. 122: 42 pp.: 1937.

5. ———. Directional Permeability of Seasoned Woods to Water and Some Factors Which Affect It: Jour. Agr. Research: 56: 10: 711-745: 1938.

6. Griffin, G. J. Bordered Pits in Douglas Fir: A study of the Position of the Torus in Mountain and Lowland Specimens in Relation to Creosote Penetration: Jour. For.: 17: 813-822: 1919.

7. ———. Further Notes On the Position of the Tori in Bordered Pits in Relation to Penetration of Preservatives: Jour. For.: 22: 6: 82-83: 1924.

8. Johnson, H. W.; and Maass, O. Penetration of Liquids in Jack Pine: Can. Jour. Res: 3: 140-173: 1930.

9. Phillips, E. W. J. Movement of the Pit Membrane in Coniferous Woods, with Special Reference to Preservative Treatment: For. Jour. Soc. For. Gt. Brit.: 7: 109-120: 1932.

10. Scarth, G. W. The Structure of Wood and Its Penetrability: Paper Trade Jour.: 86: Tech. Sec.: 53-58: 1928.

11. ———; and Spier, J. D. Penetration in Red Spruce as Affected by Solvent Action: Trans. Roy Soc. Can.: 23: 2: 28-289: 1929.

12. Tiemann, H. D. The Microscopical Structure and Physical Condition of Wood as Affecting Penetration by Preservatives: Am. Ry. Eng. and Maint. of Way Assoc. Proc. Bull.: 107: 10: 1: 638-653: 1909.

13. ———. The Physical Structure of Wood in Relation to its Penetrability by Preservative Fluids: Amer. Ry. Eng. and Maint. of Way Assoc. Proc. Bull.: 120: 11: 2: 781-796: 1910.

14. Patrick, R. "Karo" as a Mounting Medium: Science: 83: 2143: 85-86: 1936.

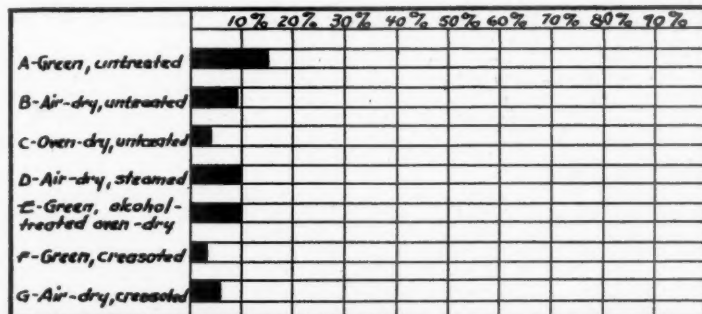


Fig. 5 (Stone) Heartwood-Springwood - Lowland Douglas Fir. Per cent of tori in central position - Based on 1199 tori.

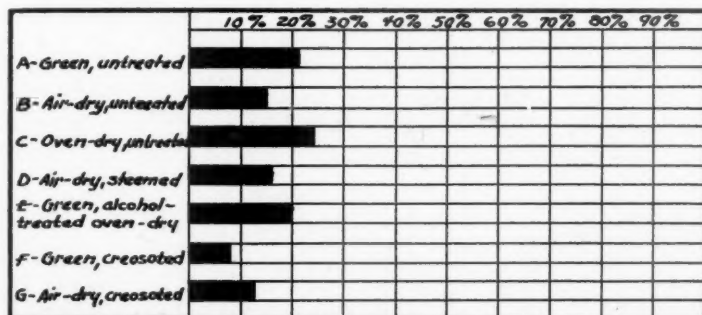


Fig. 6 (Stone) Heartwood-Summerwood - Lowland Douglas Fir. Per cent of tori in the central position - Based on 2068 tori.

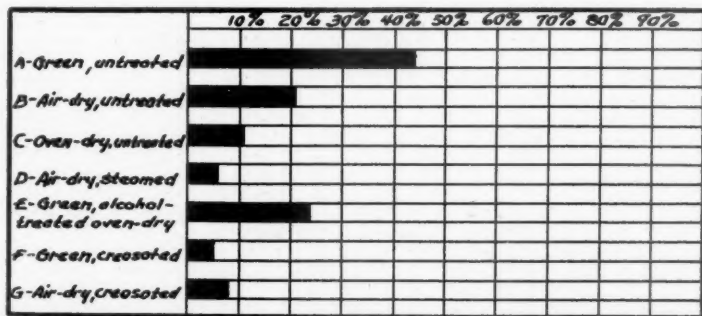


Fig. 7 (Stone) Sapwood-Springwood - Lowland Douglas Fir. Per cent of tori in the central position - Based on 2046 tori.

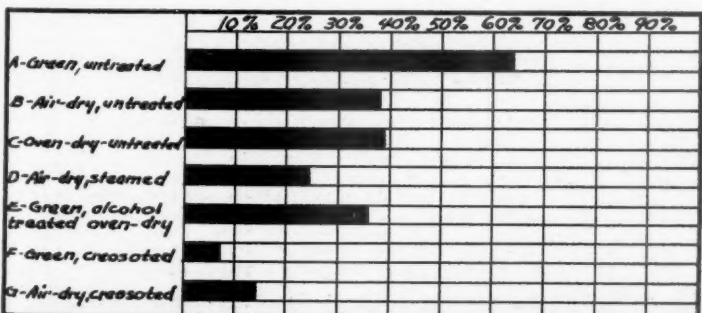


Fig. 8 (Stone) Sapwood-Summerwood - Lowland Douglas Fir. Per cent of tori in the central position - Based on 2539 tori.

## Norwegian Wage Revision Deferred for a Year

● The Norwegian Paper Industry Employers' Association has been in negotiation with the mill workers trade unions concerning a suggested reduction in wages, but the latter have rejected the proposal. The association has therefore addressed a letter to the unions pointing out the imperative necessity for a reduction if the industry is to be able to maintain its competitive capacity in the markets. The association, however, exclusively on account of the extraordinary conditions prevailing in the world, and also with respect to the unfortunate results which would ensue to the whole industry from the outbreak of a conflict, has decided to defer the question of a revision in wages until next year.

If the unions do not give notices to terminate the existing agreement, the association will also refrain from doing so, so that the agreement would continue in force until August 15th, 1940. Now the trade unions have accepted this arrangement, so that a period of industrial peace will continue until that date, according to The World's Paper Trade Review published in London.

## Grant Farmer's Tonsils Back Again

● Grant Farmer, superintendent of Fibreboard Products, Inc., Vernon plant, recently returned to the hospital for a second tonsillectomy. He had had his tonsils removed some time ago and one of them grew back again.

## California's Rice Straw Pulp Mill

● The rice straw pulp mill, on which construction began some years ago, was completed at Richvale near Chico, California, in May of this year, and pulp was produced from the rice straw grown locally. D. M. Thomson is president and general manager of the Pacific Coast Pulp & Paper Corporation, builders of the plant.

The rice straw pulp mill was designed by A. M. Thomsen, chemist and engineer, who has done much experimental work on rice straw and other agricultural products in recent years in an effort to manufacture commercial products from farm wastes.

The process of converting the rice straw into pulp is a simple one. The straw is packed into the digesters and cooked for four hours with steam and a liquor of sodium sulphide. At the end of the cook the digesters are dumped into washing tanks on the ground floor below. When washed the pulp is screened and then pumped up to the second balcony where it passes through a "slusher" which further washes the stock prior to bleaching.

After bleaching for two hours the pulp is washed again and then turned into laps on the wet machine. When the plant started the laps were dried in the sun but the company plans to install a dryer shortly.

The wet machine reduces the water content to 70 per cent and a press further reduces it to about 25 per cent.

All of the equipment was made at the plant. The sodium sulphide is recovered by evaporation. The building is 90 by 50 feet and is constructed of angle iron and covered with corrugated iron sheeting. The company owns more than 21 acres of ground surrounding the plant at Richvale.

### Relation of Paper Fibers, Paper Fillers and Paper Testing to Printing Quality

● The manufacture of forty-five book papers under carefully-controlled semi-commercial conditions at the National Bureau of Standards, and the printing of them by the Government Printing Office, have yielded some interesting information on how printing characteristics are affected by different kinds of fibers and fillers. The findings are reported in the National Bureau of Standards Research Paper 1180 by M. B. Shaw and R. H. Simmons.

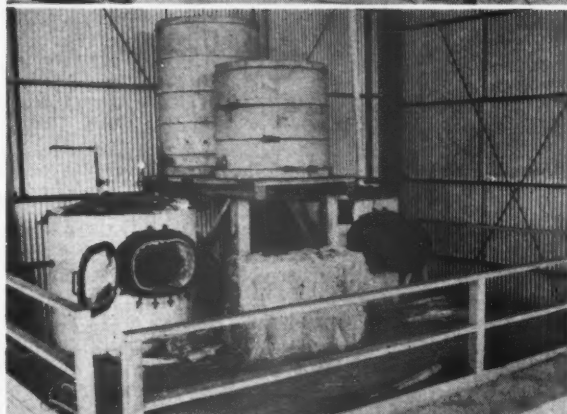
The fibrous materials used in making the papers were old rags, soda-sulphite wood pulp, and wood pulps purified by special processes. The fillers were clay, chalk, titanium pigment, and zinc pigment. The papers were printed by both the letterpress and the offset processes. Besides inspection of the prints for quality by competent observers, the papers were tested for smoothness, oil penetrability, air permeability and opacity as their properties are all known to be related to printing characteristics.

Little difference attributable to fiber was found in the printing quality. As a group, the papers containing "precipitated chalk," which is calcium carbonate produced by a chemical process, gave the best printing quality. The authors remark, however, that the relative quality of the materials may change with further advance in manufacturing technic.

Comparison of the printing characteristics of the papers with the tests made indicate that all of the tests used should be useful in evaluating printing quality, and thus assist the papermaker to ascertain before shipment of his paper whether it has the requisite printing properties. Opacity and smoothness are known to be definitely related to printing quality. Less is known of the relation of oil penetrability and air permeability, but the Bureau's findings indicate that they are also indicative of the behavior of paper in actual printing. It is stated that as data on these tests are accumulated for different types of papers and correlated with the quality of printing, it may be found

that numerical specifications of these additional properties can be included to aid in controlling printing quality within predetermined limits.

The papers used in this work were made primarily to find the effect of the fibers and fillers on their stability. The results of this study were reported in the Bureau Research Papers 949 and 1149. Copies of these and of Research Paper 1180 can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.



In the top picture appears the complete rice straw pulping equipment at Richvale. On the balcony at the left are the two digesters. Below them are the washing tanks. On the center balcony is the "slusher" which washes the stock. On the right in the background is the bleaching tank and in the foreground is the wet machine.

In the center picture are the digesters with a bale of rice straw from which the pulp is produced.

Below on the right is D. M. THOMSON, resident and General Manager; ERNEST MATTSON, Plant Superintendent is in the center, and on the left is ALFRED WOLD, Assistant Superintendent.



## Good Business for the Paper Industry

● Last year the various departments and agencies of the Federal government, exclusive of the Post Office Department, mailed out 885,000,000 pieces of "franked" mail, weighing 95,000,000 pounds. Franked mail is that which is sent by Federal departments and pays no postage.

In 1932 the Federal government franked but 319,000,000 pieces of mail. This tremendous increase has boosted the consumption of paper.

However, the past session of Congress passed a law prohibiting government departments from sending out publicity, bulletins and other mail except correspondence, unless the recipient had specifically requested that the material be sent. The aim of the law was to reduce the amount of "propaganda" sent out by the administration in power. It will no doubt be reflected in somewhat lower paper consumption by those departments of the Federal government which have in recent years been sending out material indiscriminately.

## Camas Foremen's Club Celebrates Safety Record

● The Camas Foremen's Club held a picnic at Dead End Lake on Friday night August 4, to celebrate a period of 77 continuous operating days without a lost-time accident and to honor their first-aid team which won the state-wide first-aid contest at Olympia on July 29.

## Paper Men's Club Plans Golf Party

● The Paper Mill Men's Club of southern California scheduled a summer meeting for August 18 to be devoted to the general good fun of the membership. Beginning with golf on the California Country Club links at Culver City at one p.m., the day's program was to include dinner in the evening following this and entertainment. Members were privileged to bring guests. Chairman of the committee is Chet Gunther assisted by Bill Charbonneau. The affair is officially titled "Mid-Summer Get-To-Gether."

## Holland Convalescing From Attack of Pneumonia

● Philo K. Holland, manager of Zellerbach Paper Co., Los Angeles branch, suddenly developed acute pneumonia while at his summer home at Alamitos Bay early in July. He was immediately rushed to a hospital. Subsequent treatment has brought him to the road of recovery.

In his absence Victor E. Hecht, vice-president of Zellerbach Paper Co., San Francisco, was in Los Angeles filling in during the emergency.

## General Electric Employee Pensioned Longer Than He Worked

● The General Electric Company has on its pension rolls, a retired employee who has been receiving a pension for more years than he had active service with the Company. He is Frank Beute, of Erie, Pa., now 89 years old, who was retired on a disability pension from the Schenectady Works on April 7, 1916, twenty-three years ago. He was first employed with the company on January 17, 1895, and at the time of his retirement was a machinist in the Contractor Control department. Thus his years of service totaled 21 while his time on the pension rolls has reached the total of 23 years. Mr. Beute lives with his son Albert in Erie who has 41 years service with the company.

Only one other similar case within the company has been noted. Mrs. Kate Wemple, who died June 13, 1939, at the age of 84 years, was manager of the office restaurant in Schenectady. Her active service with the company totaled 20½ years and she enjoyed a pension for 24 years before she died. She was first employed in April, 1894, and was retired on May 1, 1915.

## Mrs. Kehres Injured In Unusual Accident

● Mrs. John H. Kehres while on a vacation trip in the upper San Joaquin Valley was seriously injured in an automobile accident when the brake peddle of her car broke and she was hurled through the windshield. Although her

injuries were severe, she is expected to recover. Mr. Kehres is manager of the wrapping paper department of the Zellerbach Paper Co., Los Angeles branch.

## Attridge Going to Ranch For Vacation

● Russell Attridge of Johnson, Carvel & Murphy, Los Angeles, is planning on going native during the latter part of August when he will go to an isolated ranch, Mount Emily Ranch, just across the California state line in Oregon. A great patron of Izaak Walton's specialty, he anticipates finding places where by waving a handful of worms over the edge of the stream the fish will leap out of the water into his reel.

## July Paper Production At 73.9 Per Cent

● The weekly production ratio report issued by the American Paper & Pulp Association of New York shows that United States paper mills produced at 73.9 per cent of capacity during the month of July as compared with 72 per cent for July of 1938.

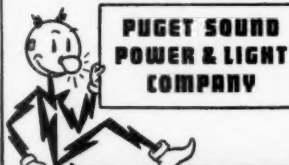
For the first 30 weeks of the year the 1939 average was 80.2 per cent compared with 68.2 per cent.

For the week ending July 29th the percentage of operations to capacity was 80.1 per cent against 77.1 per cent for the week ending July 30th, 1938.

Board production is higher than in 1938, too, with June showing 67 per cent against 56 per cent for the same months in 1938. For the week ending July 29th the production was at 70 per cent.

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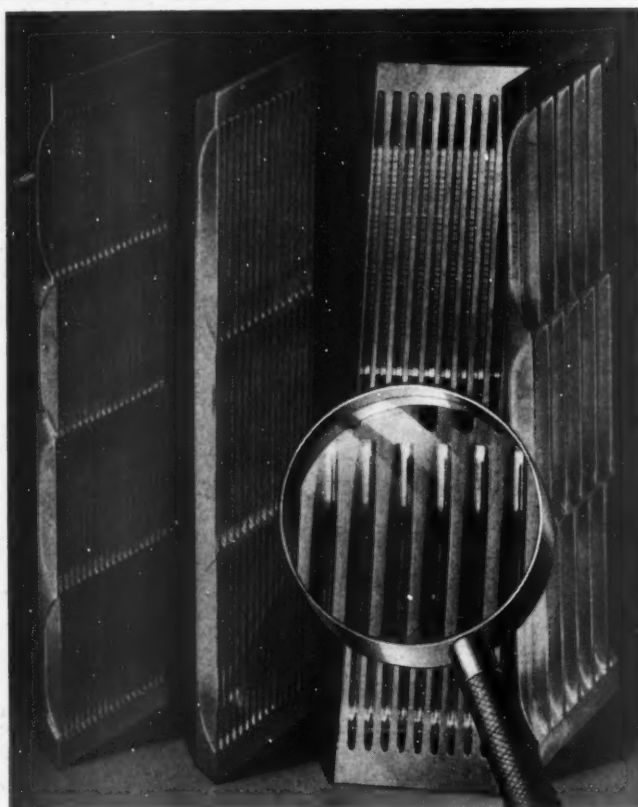
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ARE THE  
LOSERS"

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## HOW TO SOLVE FELT PROBLEMS

You may know a great deal about felts. But with due respect to your experience, here are five men—Orr Felt men—who may have picked up elsewhere some pointers that may have escaped you.

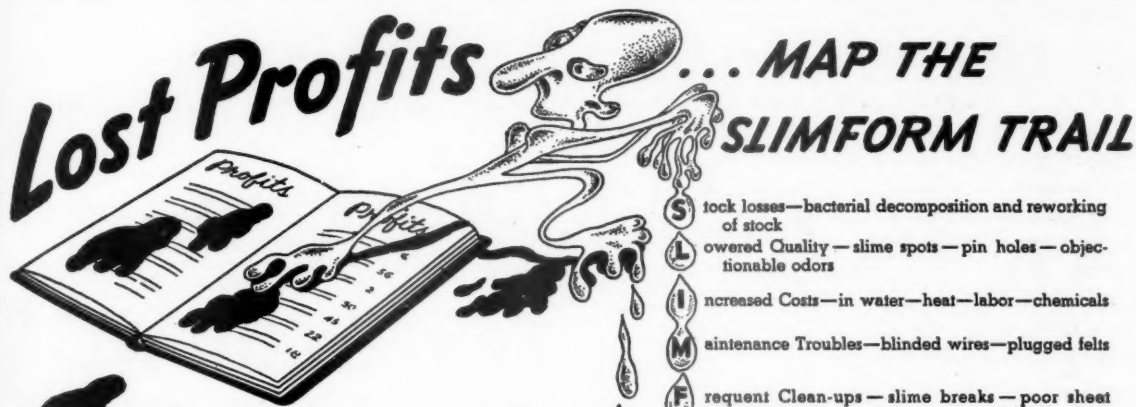
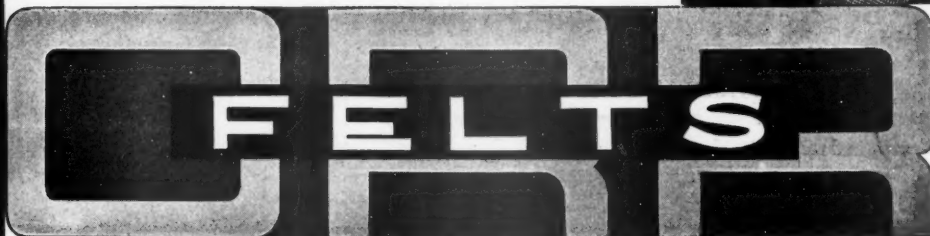
These Orr men are specialists. Solving felt problems and specifying felts is their business. It, therefore, stands to reason that they can be of valuable assistance to you.

Feel free to consult your Orr representative. There is no implied obligation. Have him analyse your moisture conditions. Check with him on the amount of wear you are getting out of your felts. Even though your costs per ton may seem reasonable, there is always the chance that they can be further reduced—and a sizeable saving affected.

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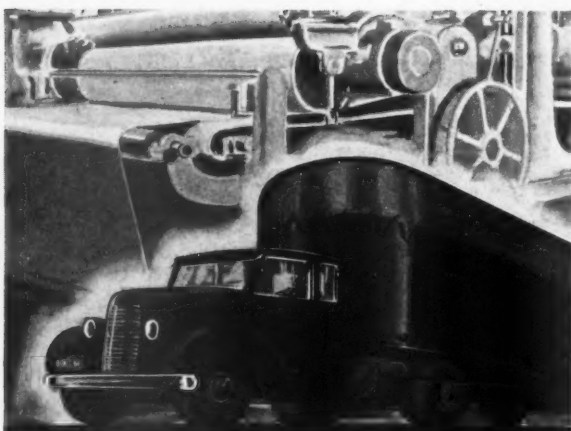
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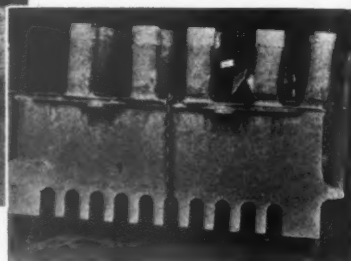
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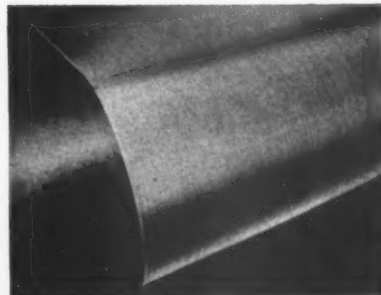
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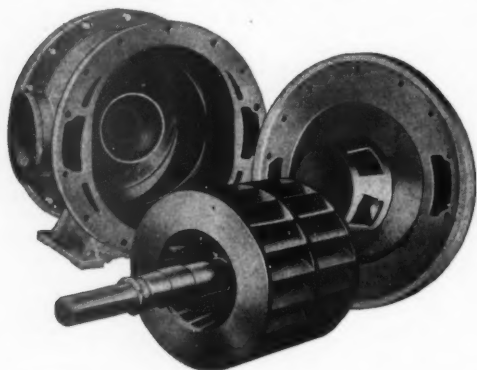
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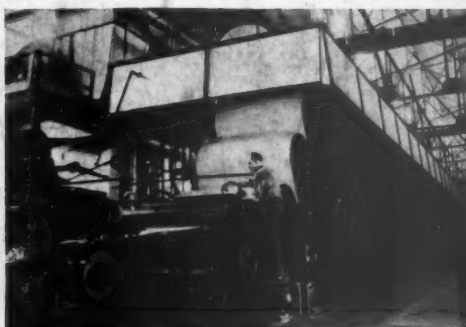
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